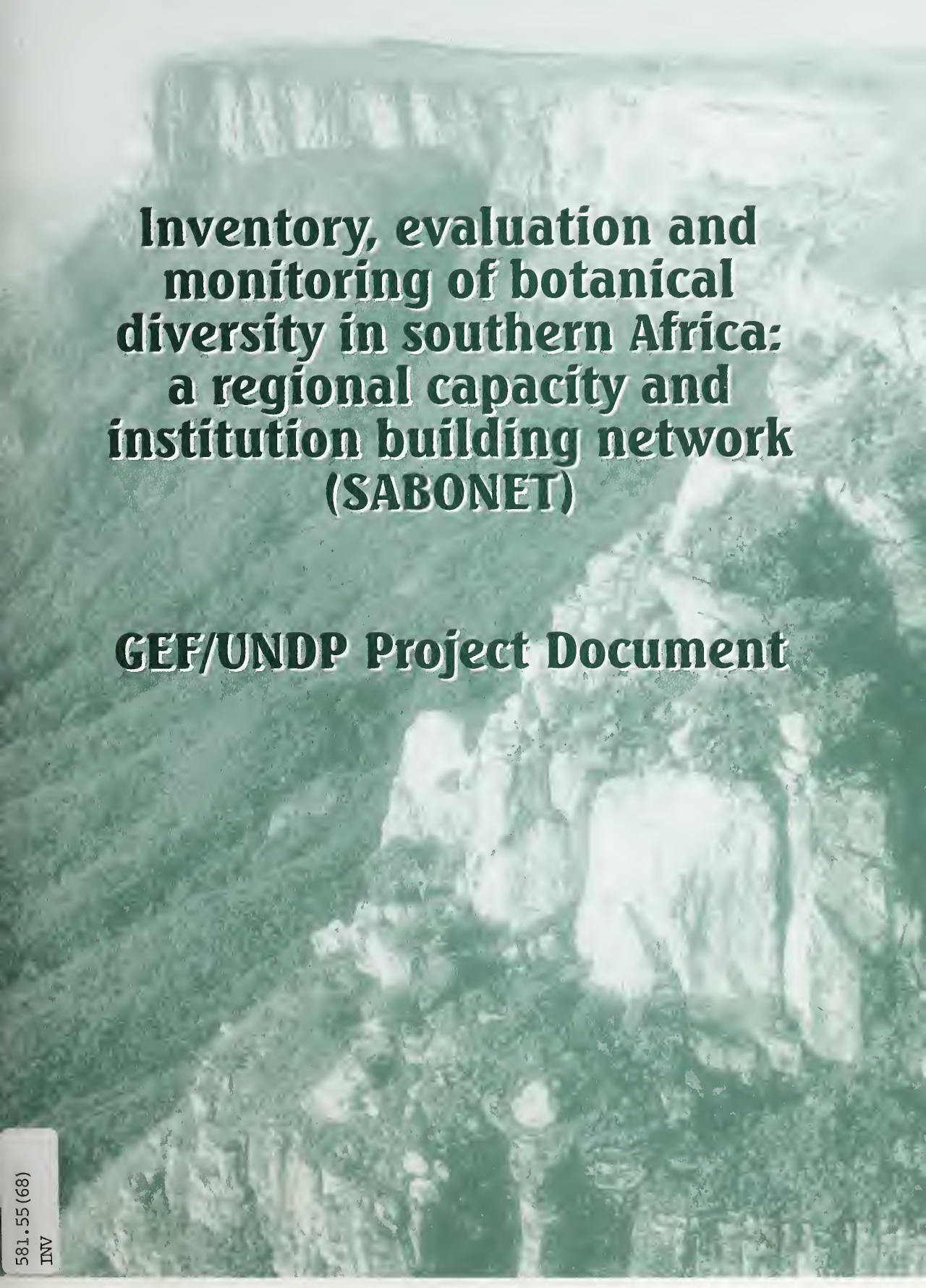


# Inventory, evaluation and monitoring of botanical diversity in southern Africa: a regional capacity and institution building network (SABONET)

## GEF/UNDP Project Document

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# Inventory, evaluation and monitoring of botanical diversity in southern Africa: a regional capacity and institution building network (SABONET)

GEF/UNDP Project Document

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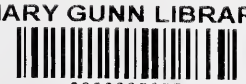


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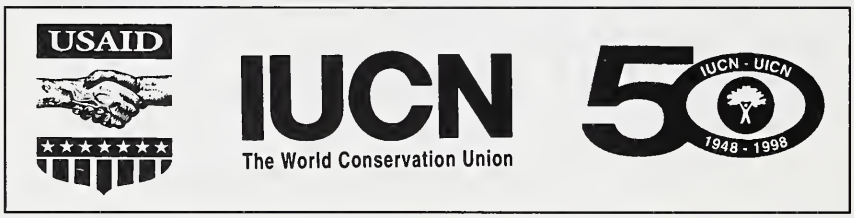
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All photographs by Christopher Willis except when otherwise noted.

**Cover photograph:** Escarpment near Tundavala in southwestern Angola. The area comprises a mosaic of Afromontane forest, montane grasslands and Zambezian woodland (Photograph: Christopher Willis).

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**Acknowledgements**

SABONET would not have been possible without the input of numerous southern African plant scientists many of whom, at successive meetings and workshops held within various parts of the region during the early 1990s, made generous and significant contributions in defining the structure and needs for such a regional southern African botanical capacity building network. Support from many of the present and former staff attached to the UNDP offices in New York and southern Africa, in particular the South African UNDP office, is gratefully acknowledged. South Africa's Department of Environmental Affairs and Tourism (former Department of Environment Affairs) provided generous sponsorship of regional conferences and workshops, with additional support from the Foundation for Research Development, the Southern African Nature Foundation (now WWF-South Africa), and the IUCN Regional Office for Southern Africa.

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## UNITED NATIONS DEVELOPMENT PROGRAMME

## GLOBAL ENVIRONMENT FACILITY

# PROJECT DOCUMENT

| | |
|---|---|
| **Project Number:** | RAF/97/G33/A/1G/99 |
| **Title:** | Inventory, Evaluation and Monitoring of Botanical Diversity in Southern Africa: a Regional Capacity and Institution Building Network (SABONET) |
| **Duration:** | Four years |
| **Project Site:** | Southern Africa |
| **ACC/UNDP Sector:** | 200/201 (Environment) |
| **Executing Agency:** | Government of South Africa |
| **Implementing Agency:** | National Botanical Institute (NBI), South Africa |
| **National Participating Agencies:** | |
| Angola | Agostinho Neto University |
| Botswana | University of Botswana -, National -, and Peter Smith Herbarium |
| Lesotho | National University of Lesotho |
| Malawi | National Herbarium and Botanic Gardens |
| Mozambique | National Institute of Agronomic Research |
| Namibia | National Herbarium |
| South Africa | National Botanical Institute |
| Swaziland | National Herbarium |
| Zambia | University of Zambia |
| Zimbabwe | National Herbarium and Botanic Garden |
| **Starting Date:** | 1 April 1998 |

**UNDP and cost-sharing financing**

| | | |
|---|---|---|
| GEF: | Preparatory Assistance: | **US$ 0.069 million** |
| | Main Project: | **US$ 4,656 million** |
| | Total GEF Financing: | **US$ 4,725 million** |
| NBI cost sharing: | | **US$ 0.090 million** |
| USAID/IUCN cost sharing: | | **US$ 0.447 million** |
| Government inputs: (in kind estimate) | | **US$ 4,000 million** |
| **TOTAL:** | | **US$ 9,262 million** |

**Brief description:**
Through networking and developing existing capacities within the southern African region, this project will build the effective capacity of professional and support staff in 10 countries to inventory, evaluate and monitor some 30,000 species of flowering plants and ferns (10% of the global flora) within arid, mediterranean, forest, mountain, coastal and wetland ecosystems. The project will directly reduce the potential negative impacts of development projects on the botanical diversity of the region by increasing the information base concerning the distribution and status of the region's botanical diversity, and will allow such assessments to be performed by individuals and institutions within the region. The strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists developed through this project will enable the ten southern African countries to respond to the technical and scientific needs of the Convention on Biological Diversity.







Figure 1. Signing of the SABONET Project Document by Prof. Brian Huntley (Chairman: SABONET Steering Committee) and Mr David Whaley (Resident Representative, UNDP-South Africa) on 20 January 1998 in the offices of the Department of Environmental Affairs and Tourism (DEA&T), Pretoria, South Africa.

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Figure 2. A mosaic of grasslands and woodland on the slopes of the Soutpansberg, Northern Province, South Africa.

## TABLE OF ABBREVIATIONS AND ACRONYMS USED IN THIS DOCUMENT

| | |
|---|---|
| AETFAT | Association for the Taxonomic Study of the Flora of Tropical Africa |
| BGCI | Botanic Gardens Conservation International |
| CBD | Convention on Biological Diversity |
| CBO | Community Based Organisation |
| COP | Conference of the Parties |
| CITES | Convention on International Trade in Endangered Species |
| EIA | Environmental Impact Assessment |
| GEF | Global Environment Facility |
| GIS | Geographical Information Systems |
| IUBS | International Union of Biological Sciences |
| IUCN | The World Conservation Union |
| IUCN ROSA | The World Conservation Union's Regional Office for Southern Africa |
| NBI | National Botanical Institute |
| NETCAB | Networking and Capacity Building Initiative for Southern Africa |
| NGO | Non-Governmental Organisation |
| ODA | Overseas Development Assistance |
| PRECIS | PRE Computerised Information System |
| SADC | Southern African Development Community |
| SCOPE | Scientific Committee on Problems of the Environment |
| SPGRC | SADC Plant Genetic Resources Centre |
| STAP | Scientific and Technical Advisory Panel |
| TRAFFIC | Trade Records Analysis of Flora and Fauna In Commerce |
| UNDP | United Nations Development Programme |
| UNESCO | United Nations Education, Scientific and Cultural Organisation |
| USAID | United States Agency for International Development |
| USAID/ISA | United States Agency for International Development 'Initiative for southern Africa' |
| WCMC | World Conservation Monitoring Centre |
| WWF | World Wide Fund for Nature |



Figure 3. **Southern Africa has the greatest diversity of succulents in the world. *Adenia spinosa* (Passifloraceae) is a stem succulent often associated with savanna vegetation.**

## SECTION A. CONTEXT

### A.1 Description of the subsector

The Convention on Biological Diversity defines biodiversity to include genes, species and ecosystems. For purposes of inventory, evaluation and monitoring, the most useful units of botanical diversity are plant species and vegetation types. These units are the common currency of research, management and sustainable utilisation practice in southern Africa, and best identify the subsector addressed in this project.

The ten countries which constitute southern Africa (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe) comprise less than two percent of the world's land area, but contain over 10% of the global flora, i.e. over 30,000 species of flowering plants and ferns in an area of around 6,000,000 km² (roughly the size of the USA). The region includes:

- 17 of the centres of plant diversity identified by the recent global review undertaken by IUCN/WWF;
- arid and semi-arid ecosystems (including the whole of the Karoo-Kalahari-Namibia region, which includes 46% of the world's succulent flora);
- the whole of the Mediterranean-type ecosystem of the Cape Floristic Kingdom - the richest centre of botanical diversity and endemism in the world;
- coastal, marine and freshwater ecosystems (notably the whole of the Zambezi system, the Okavango delta and the Kafue wetlands, besides many RAMSAR sites and several World Heritage Sites);
- forest ecosystems (including the Guineo-Congolian forests of Angola; the Usambara/Inhambane forests of Mozambique, the Afro montane forests of Angola, Malawi, Mozambique, South Africa, Swaziland, Zambia and Zimbabwe). Most, if not all of these isolated forest remnants are under severe threat;
- mountain ecosystems (including the Huambo and Huila highlands of Angola, the Chimanimani of Mozambique and Zimbabwe, the Drakensberg of South Africa and Lesotho, and Mt Mulanje of Malawi).




Figure 4. **(a-b) Guineo-Congolian forests in Angola** (Photos: B.J. Huntley).

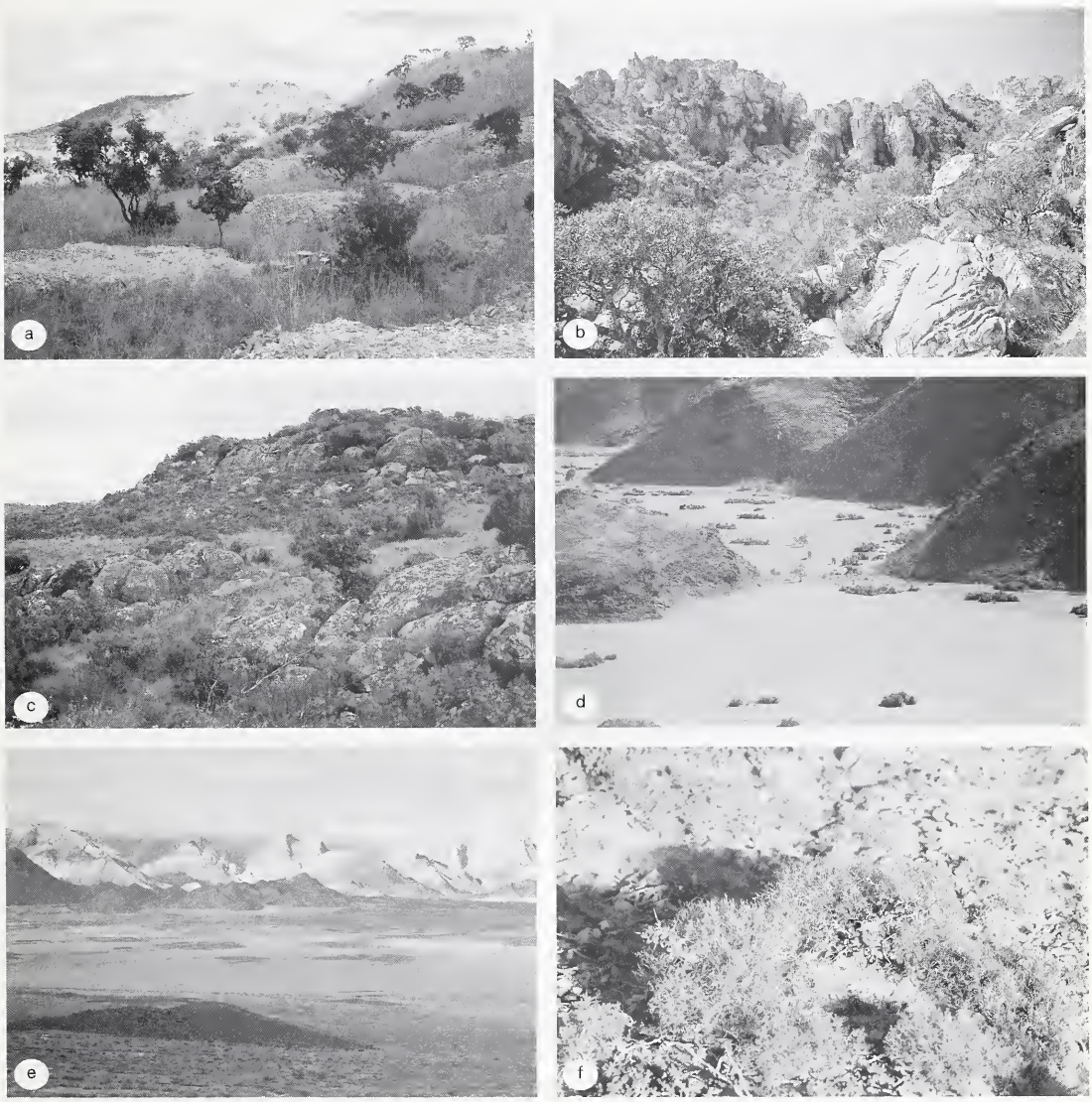



Figure 5. Examples of southern Africa's centres of plant diversity and endemism: (a) The Great Dyke in Zimbabwe is a unique geological formation occurring in a 1-11 km band of about 530 km across the centre of the country with over 20 serpentine endemics. Spoil heaps from numerous small chromium ore (chromite) surface mines, as shown here, now cover extensive areas (Photo: J.R. Timberlake); (b) Quartzitic ridges form part of the Chimanimani Mountains on the border between Zimbabwe and Mozambique. With most of the 1 000 km$^2$ area of mountains located within Mozambique, the high plant diversity in these mountains arises from the large altitudinal range, differences in moisture availability and the impoverished quartzite soils. The area comprises 42 strict endemics, including five species of *Aloe*. Forest patches are threatened by fires and fuelwood extraction (Photo: J.R. Timberlake); (c) Fynbos-like vegetation in the Nyanga area, eastern Zimbabwe. With some unique vegetation such as dwarf *Brachystegia spiciformis* (Fabaceae) woodland, the Nyanga Mountains range in altitude from 700 m to 2 592 m above sea level. Threats to the area include invasion by wattle (*Acacia* spp.) and conversion of highland areas to agriculture and softwood plantations (Photo: J.R. Timberlake); (d) The Kaokoveld is a remote, mountainous region in northern Namibia and southern Angola. This regional centre of plant diversity and endemism includes at least 116 endemic or near-endemic plant taxa as well as very old, taxonomically isolated monotypic genera such as the charismatic *Welwitschia* (Welwitschiaceae) and the grass *Kaokochloa* (Poaceae). A number of plant taxa, such as *Kissenia* (Loasaceae) and *Sesamothamnus* (Pedaliaceae), have a disjunct distribution between the arid regions on either side of the equator, indicating past connections between southwest and northeast Africa. New species, such as the rare *Euphorbia leistneri* described for the first time in August 1998, continue to be discovered (Photo: G. Bristow); (e) Succulent Karoo vegetation receives much of the moisture from the "malmokkie", the local name for the morning fogs that can extend up to 150 km inland from the coast; (f) Lichen fields form a characteristic constituent of the Namib vegetation near the coast. The lichens, here illustrated by *Teloschistes capensis* growing over the higher plant *Sarcocaulon patersonii* (Geraniaceae) near Alexander Bay in South Africa, depend on high fog precipitation for their survival. Lichen fields dominated by *T. capensis* are limited to soils containing gypsum.



Figure 6. Fragmentation and transformation of landscapes are continual threats to natural vegetation and processes in southern Africa.




Figure 7. (a) Mana Pools, a popular tourist destination comprising *Faidherbia albida* (Fabaceae) woodland in the Zambezi Valley, northern Zimbabwe (Photo: J.R. Timberlake); (b) *Brachystegia*-dominated (Fabaceae) woodland (commonly referred to as miombo woodland) in Zimbabwe (Photo: J.R. Timberlake).

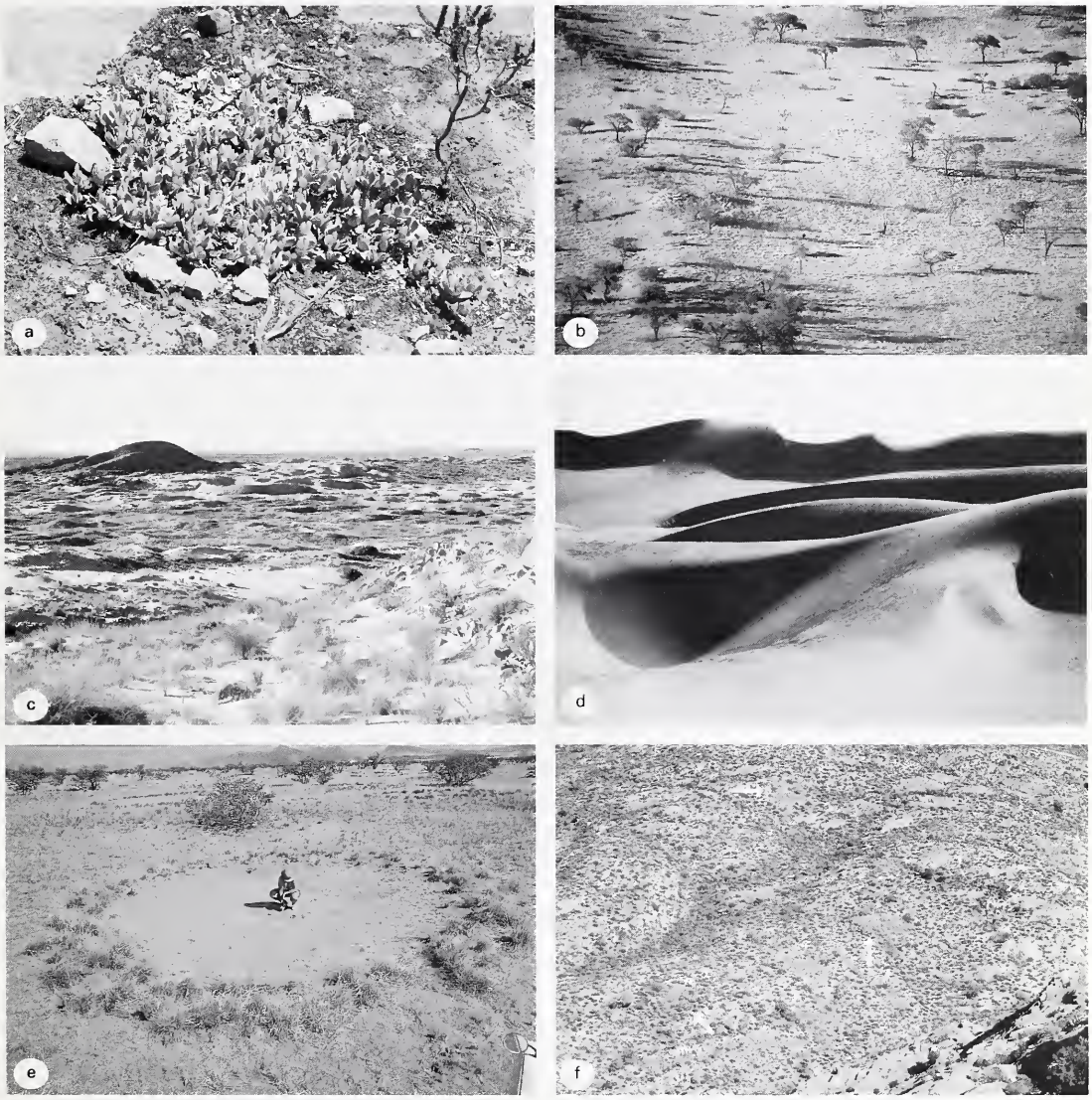



Figure 8. (a) *Braunsia vanrensburgii* (Mesembryanthemaceae) is a succulent endemic to limestone outcrops in the southern Cape, South Africa. The family Mesembryanthemaceae is one of the ten largest families in the southern African flora, with over 95% of the genera and species endemic to the region; (b) The vegetation of the Kalahari is predominantly grassland with a relatively depauperate Zambezian tree flora (mainly *Acacia* spp.) growing on undulating red sand dunes. The Kalahari is a transition zone between the tropical Zambezian region and temperate Karoo-Namib region (Photo: S. Giddings); (c) Surrounded by red Kalahari sands, Witsand in the Northern Cape, South Africa, is a small area of white sand which contains several endemic plants. The endemics are mostly situated in the seepage areas between the dunes; (d) The vegetation of the Namib Desert dunes which are at least 15 million years old, is dominated by perennial grasses of the genera *Cladoraphis, Centropodia* and *Stipagrostis*. The Namib is characterised by the rapid change of vegetation over short distances, owing to extremely steep ecological gradients; (e) Fairy rings, occurring from Angola to Namaqualand, are a curious phenomenon in the eastern Namib. Several hypotheses, from ants/termites to the release of toxins by allelopathic plants into the soil, have been proposed to explain their origin (Photo: G. Bristow); (f) *Heuweltjies* ('little hills'), or mima-like mounds, shown here by means of arrows, are widespread in the succulent karoo. Usually of zoogenic origin, *heuweltjies* generally support taller, denser vegetation with a higher woody or succulent component than surrounding shrublands.




Figure 9. (a) Mount Mulanje, southeastern Malawi, is one of southern Africa's centres of plant endemism and diversity; (b) Fynbos is characterised by the presence of three plant families - Proteaceae, Restionaceae and Ericaceae. The family Ericaceae contains the largest genus in the southern African flora. The genus *Erica* comprises more than 600 species; (c) Fynbos is not only restricted to the southwestern part of South Africa, but also occurs in patches along the high mountains of southern (Drakensberg, Soutpansberg, Blouberg, Chimanimanis) and eastern Africa. This patch of fynbos shows the presence of the family Restionaceae on the Blouberg in the northwestern part of South Africa's Northern Province; (d) A tree fern, *Cyathea dregei* (Cyatheaceae), in the Pungwe Valley, Eastern Highlands, Zimbabwe; (e) Afromontane forests occur as scattered patches of vegetation in many parts of southern Africa; (f) The vegetation in the Drakensberg is dominated by the plant families Poaceae and Asteraceae.



















Figure 10. (a) The Bokong bog at an altitude of over 3 000 m above sea level in the Maluti mountains, part of the Drakensberg range, Lesotho. Bogs form an essential role in water conservation in southern Africa, and are particularly sensitive to human-mediated disturbance. The river flowing from this bog drains into the recently constructed Katse Dam in Lesotho; (b) Wetlands of the Okavango Delta - commonly referred to as the 'jewel of the Kalahari', one of the more important freshwater wetlands in southern Africa; (c) Southern Africa's wetland areas and freshwater bodies are in some cases threatened by exotic aquatic weeds. The "weeds" shown here are *Pistia stratiotes* (Araceae)(left) and *Eichhornia crassipes* (Pontederiaceae) found in the Shire River valley, southern Malawi. *E. crassipes*, together with *Azolla filiculoides* and *Salvinia molesta*, is one of the three major invaders of aquatic systems in southern Africa, all originating in South America. Biological control has proved effective against *P. stratiotes*; (d) Savanna woodland forms a significant component of southern Africa's vegetation. Here, the savanna vegetation is associated with the Waterberg mountains, South Africa; (e) A mosaic of forest and woodland associated with Zomba Mountain, southern Malawi; (f) *Terminalia sericea* (Combretaceae)(left), an indicator of sandy soils, found growing on the Soutpansberg, South Africa.













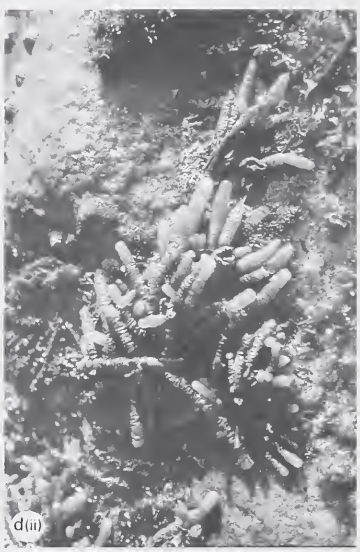






Figure 11. (a) The Luangwa River valley in eastern Zambia. The vegetation on the far bank of the river is within the borders of the South Luangwa National Park, one of Africa's great game parks. The Luangwa valley is recognised as one of the region's centres of diversity and endemism; (b) Natural grasslands in the southwestern part of Angola; (c) Mangrove community on the eastern seaboard of southern Africa. Mangrove trees and shrubs grow in bays and estuaries, exhibiting their own zonation in response to tidal enundation. Whilst mangrove communities are found as far south as 32°10' latitude on Africa's east coast, they only reach 12°20' on the Angolan coast, due in large part to the effects of the cold Benguela Current moving northwards along southern Africa's west coast; (d) Marine vegetation forms an integral, yet largely unstudied part of the southern African plant diversity. Seaweeds shown here include (i) *Laminaria pallida* and (ii) *Splachnidium rugosum* (Phaeophyta) or "dead-man's fingers". *S. rugosum* is filled with mucus which enables the alga to survive water-loss. *L. pallida* is found in the kelp beds of the Benguela Marine Province (Photos: J. Bolton); (e) *Haemanthus coccineus* (Amaryllidaceae) is a geophyte widely distributed throughout the winter rainfall region of southern Africa.

The rich biodiversity of southern Africa reflects the extreme diversity of the physical environment. The subcontinent lies between the cold, upwelling Benguela current of the Atlantic and the warm tropical waters of the Indian Ocean. A narrow coastal plain abuts steep escarpments and mountain ranges rising to over 3,000 m, with extensive plateaux at 1,000 to 2,000 m dominating the interior. Rainfall ranges from less than 50 mm per annum in the extensive Namib desert, to over 2,500 in the rainforests of Angola.

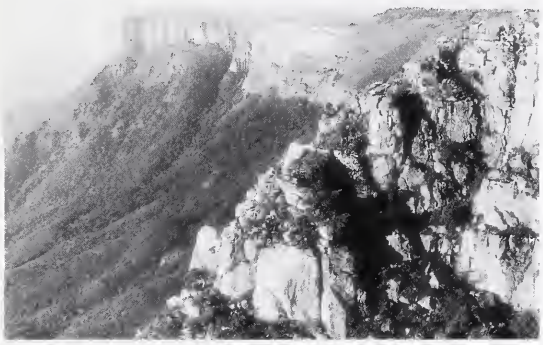


Figure 12. **The escarpment in southwestern Angola. The variation in topography has enabled a great diversity of vegetation types to exist in relatively close proximity to one another. For example, grasslands, desert and succulent flora, forests, mopane and miombo woodland (dominated by *Brachystegia* species and *Julbernardia globiflora*) may all be found within a 100-km radius.**



Figure 13. **Southern Africa (and the rest of Africa) has only one species of baobab, *Adansonia digitata* (Bombacaceae), which occurs over large parts of continental Africa. Here baobabs are found close to the coast (Atlantic Ocean) south of Luanda, Angola. Madagascar has seven different species of baobabs, all endemic to the island, and Australia one, *A. gregorii*.**

The human population (80 million in 1990), through agricultural, mining, industrial and urban activities, has exerted considerable impact on the regions' vegetation and flora. While about six percent of the region falls within protected areas, many biodiverse ecosystems are inadequately protected, while 3 435 plant taxa are listed as globally threatened with extinction in the most recent Red Data List for Plants for five of the ten southern African countries.



Figure 14. ***Ex situ* conservation must be integrated with *in situ* conservation in order to protect our valuable natural heritage for future generations** (Photo: A. Pauw).



Figure 15. **One of southern Africa's few thousand known threatened plants, *Aloe peglerae* (Asphodelaceae), endemic to the Magaliesberg mountains, South Africa. *A. peglerae* is classified as Critically Rare.**

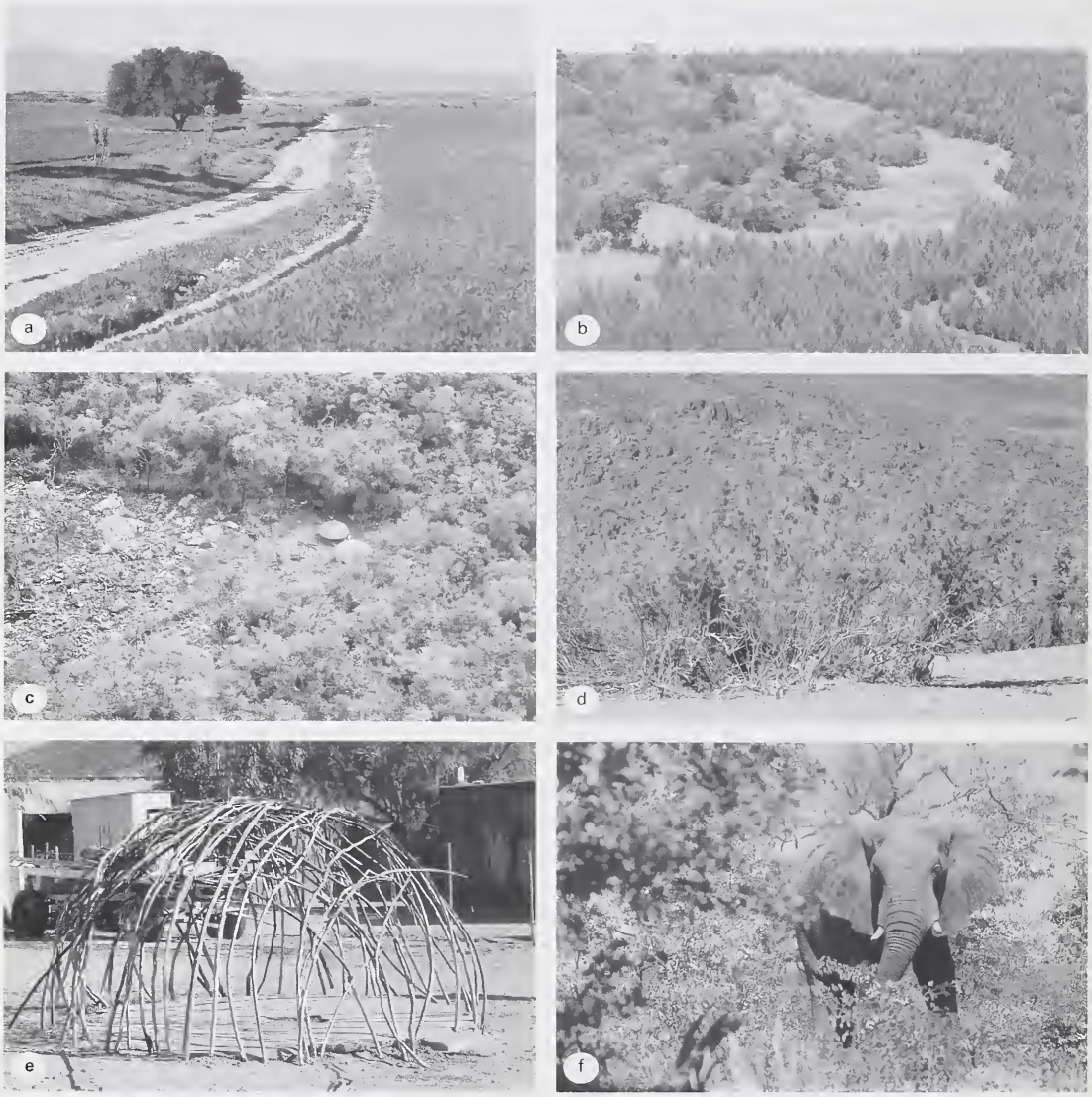



Figure 16. Mosaic of disturbances to southern African vegetation: (a) Large areas (*ca* 60%) of Renosterveld (dominated by the renosterbos or rhinoceros bush *Elytropappus rhinocerotis*) in the Cape Floristic Region have been replaced by cultivated lands - in this case by wheat fields; (b) Indigenous forests are often threatened by forest plantations of exotic trees, usually of the genera *Pinus* and *Eucalyptus*; (c) Southern Africa's indigenous vegetation is continuously threatened by agriculture; (d) The wild tamarisk *Tamarix usnoides* (Tamaricaceae) growing naturally in the sandy Gonnagariep River in the Richtersveld region of South Africa; (e) *Tamarix usnoides* is often used by man together with *Acacia karroo* (Fabaceae) to make traditional matjieshuise (mat houses) in the Richtersveld; (f) Elephants (*Loxodonta africana*) have for thousands of years been associated with southern African vegetation, but if confined to too small an area, may cause significant changes to the local vegetation (Photo: H.C. Willis), (g) such as shown with these stunted mopane trees (*Colophospermum mopane*) in the Tuli area, Botswana;






















(h) Baobabs have resisted damage caused by elephants for thousands of years; (i) Natural grasslands have, in many parts of southern Africa, been replaced by plantations - this aerial photograph shows Buffelskloof Private Nature Reserve in Mpumalanga, South Africa, as it looked in 1956 - the lighter areas around the Buffelskloof River valley are all natural grasslands; (j) the same area in 1985, showing how the natural grasslands have been replaced by pine and gum plantations; (k-l) Grasslands have also been replaced by agriculture, here grasslands have been completely destroyed to make way for maize plantations; (m) Removal of natural vegetation often results in the loss of valuable top soil through both wind and water erosion; (n) Stands of invasive alien vegetation are a constant threat to the survival of indigenous vegetation in southern Africa, here illustrated by invasive Australian acacias in the fynbos biome near Cape Agulhas.
Aerial photographs of 1956 and 1985 provided by the Chief Directorate: Surveys and Mapping, Mowbray, Cape Town, South Africa.

Detailed accounts of the botanical diversity of southern Africa, its conservation and utilisation, have been published in the recent past and are listed in Annex 9.

## A.2 Sectoral strategies

Herbaria, the national repositories of botanical diversity information, have long been the 'Cinderella' organisations of many developed and most developing countries. The international recognition given by the Convention on Biological Diversity to the critical need for sovereign states to inventory, evaluate and monitor their national biological assets, has created a new awareness of the need to provide both human and infrastructural support to institutions such as national herbaria.



Figure 17. **Botswana's National Herbarium (GAB) in Gaborone, Botswana.**



Figure 18. **Casper Bonyongo (left) and Peter Smith in the Peter Smith Herbarium (PSUB), Maun, Botswana. This herbarium is managed by staff of the Harry Oppenheimer Okavango Research Centre (HOORC) in Maun** (Photo: E. Veenendaal).



Figure 19. **The new building housing the National Botanical Research Institute, Windhoek, Namibia.**

In southern Africa, most of the herbaria were established during colonial times and staffed by expatriate specialists. Few of these devoted any resources to the training of nationals to assume responsibility for the collections following decolonisation. Furthermore, the urgent priority given by newly independent states to social needs resulted in extremely limited resources being made available to botanical institutions in the region.

Recognising the critical state of southern Africa's herbaria and plant sciences, a conference was convened in Maputo, Mozambique in February 1990, to develop a regional strategy to address the problem. Botanists from the ten southern African countries agreed that priority should be given to capacity building and institutional support. An informal 'Network of Southern African Plant Scientists' was established. Unfortunately, funding was not available to implement the conference's recommendations.



Figure 20. **Participants of the Maputo workshop, Mozambique, in February 1990 where the idea of developing a network of southern African plant scientists was initially developed. It was at this workshop that an informal 'Network of Southern African Plant Scientists' (NESAPS) was established. One issue of the *NESAPS Newsletter* was published in 1991, but was unfortunately discontinued due to lack of funds** (Photo: NBI).

Several further conferences and workshops were held, at regional and national levels, to develop action plans for southern African biodiversity. Two of these, (Bulawayo, March 1993; Cape Town, September 1993) led to successful fundraising proposals (to GEF, this project; and to USAID, co-funding for this project via IUCN ROSA). The present project, known within the region as SABONET (Southern African Botanical Diversity Network) has already established its position as the lead player in addressing the priorities identified at successive meetings in the region.



Figure 21. **Participants of the Conference on the Conservation and Utilisation of Southern African Botanical Diversity held in Cape Town, South Africa, in September 1993. 130 botanists from all southern African countries participated in the conference. The three-day workshop which followed the conference drew together 80 plant scientists and conservationists from 14 countries, including active botanists from all ten southern African countries** (Photo: NBI).

Parallel to the efforts initiated in southern Africa, an Italian government supported proposal, via SADC Forestry Sector, and proposals from Royal Botanic Gardens, Kew UK, and Missouri Botanic Gardens USA, are currently in development. These three proposals have similar or complementary objectives to the present proposal and the leading role players in each case have committed themselves to direct collaboration with, and support of, the SABONET project.

An important strategic development in southern Africa during the past decade has been the establishment, through Nordic donors, of the SADC Plant Genetic Resources Centre (SPGRC). This initiative is, in many respects, dependent for accurate identifications, ecological, distributional, horticultural and taxonomic information, on the region's national herbaria. Close liaison with the SADC Plant Genetic Resources Centre has been established and will permit the synergistic growth of both projects.

### A.3 Prior and ongoing assistance

Support for the national herbaria of southern Africa has been intermittent, *ad hoc* and sub-critical. Several short-term projects have been funded by ODA donors or foreign institutions, but none have had the long-term vision or dimension to ensure sustainability. In some cases these interventions have been disruptive and at worst, demotivating to the nationals working in the botanic gardens and herbaria of the region.

At a broader level, support for national or regional botanical diversity inventory, evaluation and monitoring has been superficial and has not generated either human or institutional capacity. Most surveys have been undertaken by foreign consultants and many of these studies are of poor quality. In many cases, no new, original field collection information has been added to the national repository of knowledge; at worst, old information has been erroneously interpreted or synthesised and has thus made a negative contribution to global knowledge on biological resources.

Further complicating the situation has been the lack of coordination between donor countries in terms of assistance in this subsector. This has possibly been due to changing government structures within both donor and recipient countries. In contrast, staff stability is a strong feature of most of the region's national herbaria, where senior staff have between 10 to 20 years continuous service and therefore offer an ideal opportunity to ensure consistent, long-term planning and coordination.

Additional financial assistance towards the project is being provided through the Regional Networking and Capacity Building Initiative for southern Africa (NETCAB). NETCAB is a five year (1995-2000) regional programme coordinated by IUCN ROSA and supported financially by USAID/ISA. The **objective** for the NETCAB programme has been defined as follows:

***Enhanced capacity of southern Africa's government institutions and NGOs to address environmental policy and management issues relevant to increasing natural resource productivity through coordinated regional initiatives and networks.***



Figure 22. **Participants that attended the first SABONET Herbarium Management training course, five weeks duration, held at the National Herbarium, South Africa, in November 1996** (Photo: A. Romanowski).

In order to accomplish the above objective the programme aims to achieve the following **four major outputs:**

1. Increased institutional management, technical and networking capacity in specific fields, including community based natural resource management, and terrestrial and aquatic biodiversity conservation;

2. Strengthened national and regional capacity for environment policy and strategy development and implementation;

3. Increased dialogue, linkages and collaboration between stakeholder groups within countries and throughout the region;

4. Improved environmental information, communication and education products and processes which enhance the outreach of a broad range of target groups and raise public awareness.

The implementation period for the NETCAB programme has been subdivided into two phases - an initial phase of three years (1 October 1995 - 30 September 1998) concluded with a joint USAID/IUCN ROSA assessment of the programme; followed by a further two year phase pending the outcome of the assessment. The National Botanical Institute, South Africa is the lead implementing agency for Activity No.1.2 of Output 1 above, entitled 'Regional Capacity Building Network for southern African Botanical Diversity' project.

### A.4 Institutional framework for subsector

The study of the flora of southern Africa goes back to the pre-colonial times, when an intimate knowledge of the properties and uses of plants was essential to survival. During the colonial period, intensive collecting expeditions covered much of the sub-continent with most of the plant material being sent back to Europe in the 18th and 19th centuries. National herbaria and botanic gardens and research institutions were established during the 20th century, usually within departments of agriculture, but in several cases, within universities. Detailed accounts of the institutional arrangements for each country are given in the regional survey listed in Annex 9.

The activities of the national herbaria and botanic gardens of the ten countries differ in minor ways, but in most cases include the following objectives (as adapted from the mission statement of the National Herbarium and Botanic Gardens of Malawi)

1. "Develop and maintain herbaria, botanic gardens and arboreta; study the flora and the vegetation in terms of classification, conservation and sustainable utilisation, and offer academic training and research in plant sciences."

In terms of the national mandates of the various botanical institutions, close collaboration is sought with other government, academic, private sector and NGO activities relating to the inventory, evaluation and monitoring of the plant diversity of each country. Unfortunately, with very few exceptions, such institutions are extremely short staffed with the result that only limited coordination takes place. In many cases, NGOs are better funded than the government institutions on which they are dependent (for botanical diversity knowledge) with a resultant net drain on resources from herbaria to expatriate consultants. This situation has led to unfortunate conflicts of interest, which can only be remedied by substantial and sustainable capacity building within and networking between the government institutions within the region.

## SECTION B. PROJECT JUSTIFICATION

### B.1 Problem to be addressed and the present situation

Despite the extremely high floristic and ecological diversity of southern Africa, the countries of the region are poorly equipped in both infrastructure and human resources to inventory, monitor and evaluate it. This makes the region dependent on biodiversity scientists and consultants from outside the region. Foreign workers and institutions thus dominate not only the staffing of many environment and biodiversity institutions but also the studies to assess impacts on, and threats to, the region's botanical diversity posed by development activities. With the exception of South Africa, not one of the countries has the "critical mass" of expertise and infrastructure needed to provide the information and understanding on botanical diversity that the Convention on Biological Diversity requires.

The urgent need for a regional capacity building programme, based on sharing the significant but isolated resources within the region, has been identified as the top priority for botanical diversity conservation and sustainable utilisation at successive regional conferences. In particular, a detailed review of the patterns of botanical diversity, conservation status, research, infrastructure and training needs, socio-economic potentials, and priorities for action, undertaken at a regional workshop for botanical diversity in southern Africa held in September 1993 concluded that:

1. Southern Africa has an extremely rich, but in some areas poorly researched botanical diversity.
2. Most countries in the region have very few trained botanists in permanent posts, few have more than rudimentary facilities.
3. As a whole, however, southern Africa possesses the human resource potential in biology to make a meaningful contribution to the study, conservation and sustainable use of its botanical diversity.
4. This potential could be best developed and strengthened through the formation of a regional network of botanists.
5. A mechanism must be established, with the appropriate funding, to ensure that the urgent capacity building and infrastructural support needed to mobilise the region's latent potential is realised.

### B.2 Expected end-of-project situation

At the end of the project, there will be in place within the ten countries of southern Africa a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists competent to inventory, evaluate, monitor and conserve the botanical diversity of the region, and to respond to the technical and scientific needs of the CBD and related international environmental conventions.

### B.3 Target beneficiaries

The expected outputs of the project, in terms of the reports, documents and trained personnel produced, will be used by the national/main functional herbaria and botanic gardens in the various countries of the region to fulfil their governments' obligations as signatories to the CBD and other international environmental conventions.

### B.4 Project strategy and implementation arrangements

#### B.4.1 Project strategy

The project described here provides a south/south solution to the problem of the continued dependence of southern African countries on the intellectual resources of the "north", a dependency

which will not be broken unless the existing local indigenous human resources are strengthened and made sustainable through a "fast-track" programme of capacity building, infrastructure reinforcement and ongoing networking. This project will complement the work of institutions such as Kew, Missouri, and IUCN which are in the process of developing projects within southern Africa which will support and strengthen the Capacity Building Network proposed here. Close coordination and adaptation with existing biodiversity projects within the region, to avoid overlap, will be effected. The project will also strengthen existing links with northern botanical institutions which have specific interests in southern Africa, in particular: Berlin, Copenhagen, Geneva, Hamburg, Kew, Lisbon, Missouri, Paris, Stockholm and Uppsala. Strong bonds will also be established with the World Conservation Monitoring Centre (WCMC) and AETFAT.

The project builds on a number of existing systems and capacities, viz.:

a) the most important component of cost-effectiveness is the fact that the entire exercise is Africa-based, is an exercise in south/south development, and that all benefits will remain in the target countries. No non-southern African consultants or infrastructure are involved. Participation by one or two scientists from Northern institutions on the Steering Committee will provide links with these organisations, but will not imply any form of dependence.

b) the project is regional because it is based on the sharing of collective skills in the region. The project will break the expensive tradition of southern Africans having to go to Europe and America for training and post-graduate studies. The costs of providing training and university education within southern Africa is less than 50% of fees for study in Europe and America, and in some instances might be as little as 20% of the cost of equivalent travel, accommodation and tuition fees.

c) solutions to Africa's many environmental problems have usually been sought through the introduction of technologies and specialists from developed countries. The project will use locally produced technologies, locally led training courses and is targeted solely at participants from southern African countries for training within the region. It is therefore designed and dedicated to the very specific needs and constraints of the participating countries. The frequently experienced problems of technology transfer and adaptation will therefore be avoided, increasing the cost-effectiveness of the overall project in meeting the environmental benefits for which the project is designed.




Figure 23. **Logos of proposed collaborating institutions, organisations and commissions within the SABONET Project.**



Figure 24. **Field excursion during the Second Herbarium Management training course, Buffelskloof Private Nature Reserve, Mpumalanga.**



Figure 25. **SABONET's philosophy is "learning by doing".**



Figure 26. **Participants that attended the second SABONET Herbarium Management training course, three weeks duration, in August 1997** (Photo: A. Romanowski).



Figure 27. **Participants attending a tree identification course on the Soutpansberg as part of the second Herbarium Management training course, August 1997.**



Figure 28. **An Asteraceae identification course within the second Herbarium Management training course, National Herbarium, South Africa** (Photo: A. Romanowski).

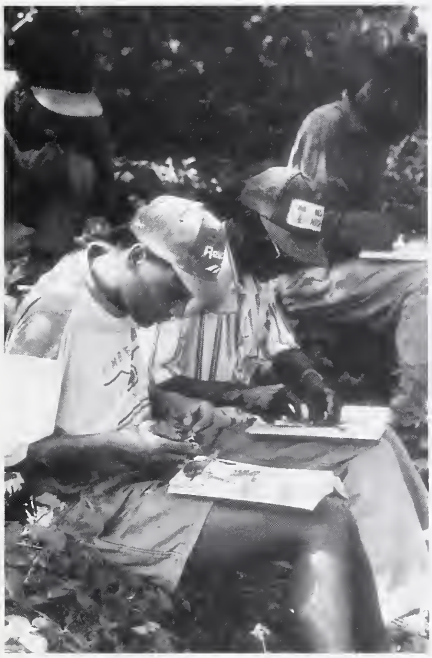


Figure 29. **Preparing "mobile herbaria" of fern specimens during the SABONET-hosted Fern Identification Course held in Zomba, Malawi, November 1997.**



Figure 30. **Mr Augustine Salubeni, one of Malawi's foremost parataxonomists.**



Figure 31. **Field excursion to the Liwonde National Park, southern Malawi, November 1997.**



Figure 32. **Dr Patrick Phiri, plant taxonomist from the University of Zambia Herbarium (UZL).**

d) the PRECIS electronic database. This database has been developed within the region covering five countries - Botswana, Lesotho, Namibia, South Africa and Swaziland) over the past 15 years at a cost of over US$ 8 million. It holds detailed voucher information on 800 000 specimens of 22 000 species from throughout the region. A framework is thus immediately available on which each of the participating countries can develop national information systems. For the five countries that are not yet included in the PRECIS system (Angola, Malawi, Mozambique, Zambia and Zimbabwe) upwards of 70% of their taxa are already listed in the PRECIS database. For a very small cost, the full benefits of an existing, tried and tested system will be available. The herbaria database will be expanded to include the botanic gardens with cultivated species in the region.



Figure 33. **Database Managers Course, National Herbarium, South Africa, May 1997** (Photo: A. Romanowski).



Figure 34. **Field excursions form an integral part of training courses.**

e) expensive field operations are not necessary to collect the information. The herbarium material already exists. At a small cost, this vast knowledge store can add very significant value to each national institution which is already carrying the heavy but unproductive cost of maintaining national herbaria.

f) the prospective candidates for training and graduate studies are already in position. However, their full intellectual potentials have not been realised because they are located in isolated institutions with limited access to leadership, new technologies, the benefits of peer-group interaction and the stimulation of career growth. For limited costs, this existing human resource can be developed into a regional, indigenous corps of professionals.



Figure 35. **Mrs Patricia Craven, from Namibia's National Botanical Research Institute, attending a national Grass Identification Course held at the National Herbarium in Namibia in March 1997** (Photo: NBRI, Namibia).



Figure 36. **Ms Georgina Neto (Angola) identifying grasses during a regional Grass Identification Course held at the National University of Lesotho, December 1997.**

g) a particularly significant economy of the project is the fact that participants will be working, at all times, with plants and vegetation that they know intimately and on which they will acquire expertise directly relevant to their professional careers. The opposite is true of Africans having to study alien and unfamiliar floras in Europe and American training centres. The result of the project will be immediately applicable to each participant.

With regard to botanic gardens, strong links will be established with the BGCI network of botanic gardens around the world, in particular Frankfurt, Geneva, Kew and Missouri.

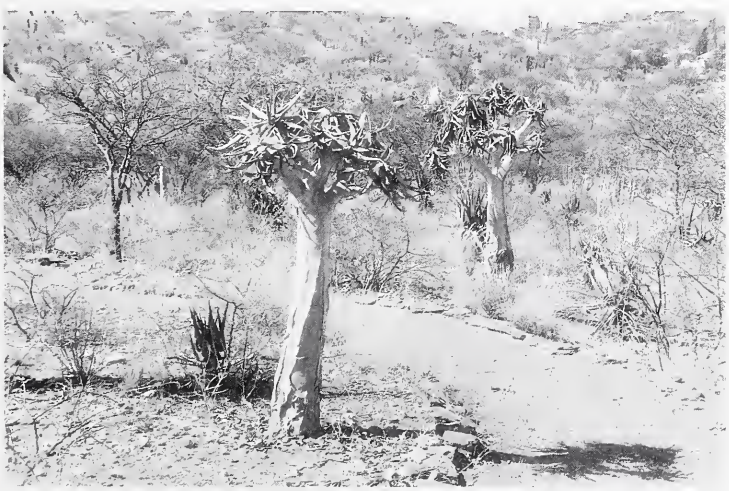


Figure 37. **The Quiver tree or Kokerboom, *Aloe dichotoma* (Asphodelaceae), growing in the National Botanic Garden of Namibia in Windhoek. The common name is derived from the use of the hollowed stems for quivers by the San people.**



Figure 38. Namibia's National Botanic Garden is dominated by the tall and single-stemmed mopane aloe *Aloe littoralis*. The species is widely distributed in southern Africa, occuring in Angola, Namibia, Botswana, Zimbabwe, Mozambique and South Africa.



Figure 39. Epiphytic orchids growing under a shelter in Malawi's Zomba National Botanic Garden.

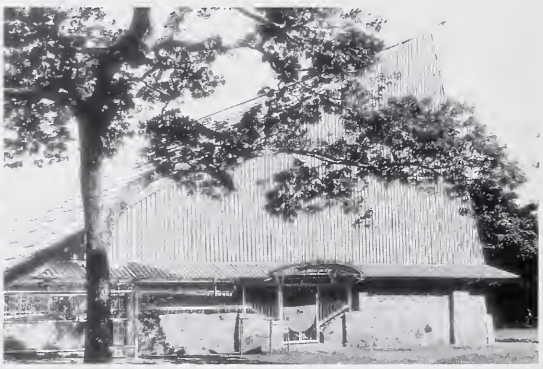


Figure 40. The Desert House in Zimbabwe's National Botanic Garden in Harare.



Figure 41. The Education Centre in Zimbabwe's National Botanic Garden.



Figure 42. The Katse Botanic Garden in Lesotho during it's early stages of development, December 1997.

### B.4.2 Implementation arrangements

The overall management and administrative responsibility for the project will rest with the NBI, South Africa. Adequate office and infrastructural facilities are available at the National Herbarium, Pretoria, for co-ordinating and administrative staff, as are lecture halls, laboratories, library, computing facilities, herbaria and living collections. The financial administration of funds will be co-ordinated on behalf of the SABONET Steering Committee by the NBI's accounting division and subject to annual statutory audits and reporting to the Implementing Agency.

For the national herbaria and universities, participation in the project will imply a range of responsibilities which will be clearly defined and negotiated via appropriate government Ministries. In view of the different structures of administration in the ten potential participating countries, it is not appropriate to generalise on the form that such arrangements should take.

## B.5 Reasons for assistance from UNDP

**(a)** The project directly builds capacity for the sustainable implementation of all four GEF biodiversity operational programmes in the southern African region and as such is highly strategic.

**(b) Relationship to the Programme Priorities identified by the COP of the CBD**

- promote the utilisation of regional and local expertise and be flexible to accommodate national priorities and regional needs ...
- identification and monitoring of biodiversity components ...
- capacity building ...
- promote the sustainability of project benefits; ... and that encourage scientific excellence

**(c) Relationship to the Guidelines for the First GEF Biodiversity Work Programme in 1995**

- fulfil CBD's eligibility criteria
- contribute to building regional cooperation in implementing the Convention
- promote the utilisation of local and regional expertise
- assist eligible countries in fulfilling their obligations under the convention

**(d) Links with the Convention on Biological Diversity**

- *Article 5. Co-operation* - Each Contracting Party shall ... co-operate with other Contracting Parties ...
- *Article 7. Identification and Monitoring* - Each Contracting Party shall ... identify components of biological diversity, ... monitor the components of biological diversity, ... maintain and organise, by any mechanism data, derived from identification and monitoring activities ...
- *Article 8.* In-situ *conservation* - Each Contracting Party shall ... develop guidelines for the selection, establishment and management of protected areas ... promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies
- *Article 9.* Ex-situ *conservation* - Each Contracting Party shall ... establish and maintain facilities for *ex-situ* conservation of and research on plants ... adopt measures for the recovery and rehabilitation of threatened species ... regulate and manage collection of biological resources from natural habitats for *ex-situ* conservation purposes ... co-operate ... in the establishment

and maintenance of *ex-situ* conservation facilities in developing countries
- *Article 12. Research and Training* - The Contracting Parties shall ... establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity ... and provide support for such education and training for the specific needs of developing countries ...
- *Article 17. Exchanges of information* - Each Contracting Party shall ... facilitate the exchange of information ...
- *Article 18. Technical and Scientific Co-operation* - The Contracting Parties shall ... promote international technical and scientific co-operation ... special attention should be given to the development and strengthening of national capabilities, by means of human resources development and institution building ...

**(e) Relationship to the Approved GEF Operational Strategy**

The project responds directly to all the operational criteria of the approved GEF operational strategy in that it:

(i) Is fully country driven and endorsed as a national and regional priority by all participating countries (1.7 & 1.8),
(ii) Directly promotes and strengthens human resources and skills (1.9),
(iii) Reduces risks from scientific uncertainty by increasing and improving environmental information to support decision making and action (1.11),
(iv) Directly addresses root causes of global environmental deterioration through remedying institutional weaknesses,
(v) Directly incorporates the best scientific and technological advice from three STAP reviewers who all strongly supported the project,
(vi) Directly builds capacity, strengthens institutions and increases the availability of information,
(vii) Requests financing for only those incremental costs associated with the obligations of the countries which are parties to the CBD,
(viii) Leverages US$ 4 million of national funds and US$ 0.45 million of USAID funds, and
(ix) Encourages international co-operation.

**(f) Building Regional Capacity through South/South Co-operation**

Much of post-colonial Africa has suffered from the paradox of a steady erosion of national collections (of plant and zoological specimens) simultaneous to the rise in international and national concern for biodiversity conservation. As the indigenous and local knowledge and skills base has been eroded, foreign consultants and institutions have rushed in to fill the gap. Local expertise has been drawn away from Africa (to study for higher degrees in northern universities, remote from the realities, needs and environmental circumstances of Africa) and many such graduates either do not return, or if they do, they rapidly enter administrative posts. This situation can only be reversed by an African-based, in-service and carefully targeted capacity and institution building programme.

**(g) Catalytic Action Releasing Untapped Potential**

The project will build on the existing infrastructure and human resources in the region. GEF funding will act as a stimulant and catalyst to create the critical mass of indigenous expertise needed to reap the potential of existing national commitments and to provide for global benefits. A relatively small investment, adding to the existing national commitments, will result in very significant gains.

### (h) Global Benefits

The project will significantly enhance global knowledge of the 10% of the world's botanical diversity that is situated in the region: over 30,000 plant species; 17 of the global centres of plant diversity; 46% of the world's succulents; the whole of the richest centre of botanical diversity and endemism in the world (the Cape Floristic Kingdom); as well as many world-renowned arid (Karoo-Kalahari-Namib); coastal, marine and freshwater (Zambezi delta, Okavango delta, Kafue wetlands); forest (Guineo-Congolian, Usambara/ Inhambane, Afromontane); and mountain (Huambo, Huila, Chimanimani, Nyika, Drakensberg, Mulanje) ecosystems. It will enable the countries of the region to share their own knowledge both with their partners in the region and with the world as a whole. Checklists, distribution maps, and status information on all the region's 30,000 species of plants and their ecosystems will be produced. *Ex situ* living collections of indigenous plants will be maintained. Dependence of the region on biodiversity scientists and consultants from outside the region will be overcome. The world's scientific and conservation community will benefit from dramatically increased knowledge and availability of knowledge of the region's flora.

### (i) Replication

The proposed project, centred as it is in southern Africa, can readily be duplicated in other African countries and in similar regions of the world. The southern African project can be used as a model to test the wider application of an information system-based capacity building exercise in developing countries.

### (j) UNDP

With UNDP Country offices in each of the ten participating countries, the UNDP is well placed to provide assistance for this project. The UNDP can also seek input from other international conservation agencies, such as IUCN and WWF, in the region. Existing UNDP programs and projects within the region that are relevant to this project are listed in Annex 10.

## B.6 Special considerations

The two lusophone countries, Angola and Mozambique, will require special support to ensure that they are not disadvantaged due to language. Support will include *inter alia* the provision of scientific literature and the sponsoring of English courses for staff working in herbaria and botanic gardens of both Angola and Mozambique.



Figure 43. **The building housing the LMU Herbarium in Maputo, Mozambique** (Photo: S. Bandeira).



Figure 44. **The building housing the Luanda Herbarium, part of the Agostinho Neto University, in Angola.**



MARY GUNN LIBRARY
NATIONAL BOTANICAL INSTITUTE
PRIVATE BAG X101
PRETORIA 0001
REPUBLIC OF SOUTH AFRICA



Figure 45. **Ms Liz Matos played an important role in setting up SABONET activities in Angola and coordinated the rescue of the plant specimens housed in the Huambo Herbarium during the Angolan civil war in the early 1990s.**



Figure 46. **Ms Teresa Martins of Angola's Luanda Herbarium undergoing training in Lisbon, Portugal, under the guidance of Eurico Martins and Maria Adélia Diniz, November 1997. Teresa spent eight months receiving training in herbarium management techniques as part of a NETCAB Fellowship** (Photo: Maria Adélia Diniz).




Figure 47. **The Lubango Herbarium in southwestern Angola houses an important collection of plant specimens under the curatorship of Snr José Daniel.**



Figure 48. **Visit to the Lubango Herbarium, Angola, in June 1997. Snr José Daniel, the Curator of the herbarium, is second from the right.**

Care will be needed to ensure fair and transparent sharing of resources between the ten participating countries. The countries are widely divergent in socio-economic, ecological and biodiversity terms. Similarly, their infrastructure, technical capacity, and governmental environmental policies differ widely. Although provisional allocations have been determined, it will be the task of the Steering Committee (see point 7 below) to determine the level and nature of support allocated to each participating organisation, according to carefully defined and agreed criteria.

### B.7 Co-ordination arrangements

The project will be co-ordinated and guided by a Steering Committee comprising representatives of each participating country. The chairperson of the Steering Committee will be elected by its members, and supported by the Project Coordinator's office. The Steering Committee will be strengthened by inclusion of representatives of the UNDP, IUCN ROSA (NETCAB Programme Manager as an *ex-officio* member), SPGRC (*ex-officio* member) and independent scientific advisors from appropriate botanical institutions in donor countries.



Figure 49. **Participants at the Fourth SABONET Steering Committee meeting held in Zomba, Malawi, in September 1997.**

The Steering Committee will meet twice annually, in different participating countries in rotation and by mutual agreement. The Terms of Reference of the Steering Committee are listed in Annex 7.

Within each participating country, a National Working Group will be established to provide support and input to the project participants. The National Working Groups might comprise:

- National project leader (usually the Director of the national/main functional herbarium);
- Representatives of SADC Biodiversity Units;
- Representative of a university botany department;
- Representative of the UNDP;
- Representative of IUCN and/or other NGO;
- Representative of the National Plant Genetic Resources Centre;
- Representative(s) of the ministry(-ies) responsible for botanical/conservation matters.



Figure 50. **Participants at one of SABONET-Angola's National Working Group meetings, June 1997** (Photo: K. Loutchanska).

The project calls for close collaboration at several levels. First, through the UN system, the leadership and guidance of UNDP will be critical at both national and regional levels. Secondly, the project links with the inter-governmental activities of the SADC. Thirdly, existing regional activities of NGO groups such as IUCN (especially through IUCN ROSA), the ICSU system (especially the *Diversitas* programme of UNESCO/IUBS/SCOPE), and the Taxonomy and Nomenclature programme of IUBS, plus the members of AETFAT, offer excellent opportunities for linkages with colleagues and ongoing activities.



Figure 51. **Field excursion during the AETFAT meeting held in Harare, Zimbabwe, February 1997** (Photo: J.E. Victor).

The execution of the project will require ongoing collaboration between NGOs, CBOs and governmental institutions. CBOs (particularly in the field of traditional medicines) will contribute to and benefit from the improved knowledge base and sustained resource use that will result from the project.

Private sector involvement will be critical to the long term sustainability of the programme. The expertise developed by the project (in information management, resource inventory, biodiversity prospecting and environmental impact assessment) will have direct commercialisation value which the participating institutes can market within the private sector. The continuing erosion of indigenous intellectual property and expertise by the use of foreign, expatriate consultants in southern Africa, rather than locally born and trained professionals, will be reversed by this project.

### B.8 Counterpart support capacity

The level of counterpart support capacity varies widely between the ten participating countries.

In all countries, the essential basic physical infrastructure and minimum staff requirements are available, provided by the government ministry and/or university. In many cases these elements need considerable reinforcement.

It can be anticipated that participating governments will recognise the benefits of increased counterpart commitments as the capacity building project, and its resultant products, develops. The present investment in *ex situ* botanical diversity conservation, inventory, monitoring and evaluation activities in the region exceeds US$ 10 million per annum, including staffing of over 240 technical staff and 450 labourer staff. This excludes the commitments to *in situ* conservation in formal protected area networks, which covers over 6 per cent of the region.

The physical infrastructure provided by the participant countries (herbaria, stores, offices, nurseries, education facilities, visitor facilities) exceeds US$ 20 million, exclusive of the value of the land included in botanic gardens and other facilities.

Although the major portion (over 70%) of the above commitment is within one country (South Africa), the level of commitment of each participating country is sufficient to ensure the viability of the project within each one of these. The value of the floral diversity at national and global levels can, in fact, only be realised once the local capacity to evaluate and use it has been created. Counterpart investment will grow as the appreciation of these resource values is developed and communicated.

## SECTION C. DEVELOPMENT OBJECTIVE

The Development Objective is to **contribute to sustainable human development in the southern African region through the effective conservation and utilisation of natural resources**. See ***Logical Framework Matrix*** below.

## SECTION D. IMMEDIATE OBJECTIVE, OUTPUTS AND ACTIVITIES

The Immediate Objective is to **develop a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa, competent to inventory, monitor, evaluate and conserve the botanical diversity of the region in the face of specific development challenges, and to respond to the technical and scientific needs of the Convention on Biological Diversity**. For outputs and activities see the ***Logical Framework Matrix*** below.

# SABONET LOGICAL FRAMEWORK MATRIX

| | NARRATIVE SUMMARY | VERIFIABLE INDICATORS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|---|---|---|
| | **OBJECTIVES**<br><br>**Development Objective:** Contribute to sustainable human development in the southern African region through the effective conservation and utilisation of natural resources | | | |
| | **Immediate Objective:** Development of a strong core of professional botanists, taxonomists, horticulturists and plant diversity specialists within the ten countries of southern Africa, competent to respond to the technical and scientific needs of the Convention on Biological Diversity and the implementation of national and regional strategies for the identification, conservation, and utilisation of southern Africa's botanical diversity | | | |
| | **OUTPUT** | | | |
| 1 | Trained professional southern African plant taxonomists, horticulturists and plant diversity specialists | 33 post-graduate biodiversity specialists, 39 parataxonomists, 16 living collection managers and 14 MSc/PhD biodiversity specialists | Reports from trainees, training and quarterly reports to NETCAB, copies of certificates, record of training notes distributed, summaries of biographical data sheets disaggregated by gender, country, institution | Training courses offered are effective; funds are provided to promote and develop technical expertise within the various regional institutions; institutions have personnel within the establishment or are able to recruit suitable personnel for the project |
| 2 | Formal establishment of a collaborating Southern African Botanical Diversity Network | Functional Steering Committee, Project Coordinator's Office and National Working Groups | Copies of minutes of Steering committee meetings, Observations by NETCAB and UNDP representatives, Reports, newsletters and publications from Coordinator's office, Reports and minutes from National Working Groups | Willingness to collaborate between participating institutions |
| 3 | Electronic information systems on the region's plant diversity | National and regional databases for botanical diversity information | Copies of the databases | Ability of national infrastructures to support electronic systems |
| 4 | Production of regional human and infrastructural inventories | Publication of reports based on surveys done within the region | Copies of publications | Willingness to collaborate in the preparation of inventories |
| 5 | Plant diversity evaluations and monitoring within the region | Publication of national and regional plant checklists, Red Data lists and conservation strategies | Copies of publications | Effective access to existing data and ability to collect, analyse and process new data |
| 6 | Development of a regional botanical gardens conservation strategy | Publication of a Southern African Botanical Gardens Conservation Strategy | Copies of publications | Willingness to collaborate in the formulation and preparation of a botanical gardens conservation strategy |

# SABONET LOGICAL FRAMEWORK MATRIX

| | NARRATIVE SUMMARY | | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|---|---|---|
| | **ACTIVITIES** | | | |
| 1.1 | Identify regional training needs | Training needs identified | Training needs assessment report | Participants are willing and able to share their training needs |
| 1.2 | Develop participatory training courses | Training courses developed | Copies of curricula held in SABONET Coordinator's office | The necessary expertise is available to define the contents of, and present training courses |
| 1.3 | Implement training courses | Training courses conducted | Reports from training sessions | Lecturers are available and capable of undertaking the task; students have permission to attend course; funds are available to support course participants and lecturers where necessary |
| 1.4 | Regional and national training courses | Training courses conducted | Reports from training sessions | Necessary facilities are available within the region to run training courses |
| 1.5 | Regional workshops to define and formalise the training needs and requirements within the region | Regional workshops held | Reports from the workshops | Participants from the region are available to attend and constructively participate in planned workshops |
| 1.6 | Short-term fellowships and professional exchange of personnel between institutions (up to a maximum of three months) | Fellowships and exchanges underway and completed | Reports from fellows and exchange personnel | Funding and participants are available from within the region. Collaborating institutions are willing to participate in the programme |
| 1.7 | Post-graduate support for national herbarium and botanical garden staff at tertiary institutions | National herbarium and botanical garden staff undertaking or completed post-graduate courses at tertiary institutions | 6-monthly reports from post-graduates; certificates and reports from universities attended | Institutions within the region are able to offer relevant post-graduate courses; funding is available to support the post-graduate students; students are given permission from their host institutions to undergo full or part-time post-graduate training |
| 2.1 | Project Steering Committee and Executive Committee appointed and functioning | Steering Committee acting in accordance with their defined terms of reference, having regular meetings | Minutes from Steering Committee meetings | Members from participating institutions are able and willing to attend Steering committee meetings; funds are available to support Steering committee meetings; Coordinator's office is able to take and produce minutes from Steering committee meetings |
| 2.2 | Appointment of Project Coordinator, Assistant, Financial Officer, Computer Programmer, Herbarium Research Officers and Herbarium Technical Assistants | Staff are in place in the various participating institutions and the Coordinator's office | Staff are present and working in the various positions, and contributing to the project objectives, outputs and activities | Suitable staff are available and willing to take up positions within the various institutions and Coordinator's office |
| 2.3 | Identify role players for the National Working Groups | National Working Group members have been identified | Members of National Working Groups are listed in reports/publications | National Working Group members are available and willing to participate within the programme |
| 2.4 | Establish functional National Working Groups in each participating country | National Working Groups hold regular meetings and coordinate SABONET activities within the various countries of the region | Minutes and Annual reports from National Working Groups | National Working Groups meet regularly and fulfil their terms of reference |
| 2.5 | Publication of a Network newsletter | Regular production and distribution of the project newsletter, *SABONET News* | Newsletter, report of circulation | Funds, information and facilities are available to publish the project newsletter |

# SABONET LOGICAL FRAMEWORK MATRIX

| | NARRATIVE SUMMARY | VERIFIABLE INDICATORS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|---|---|---|
| 2.7 | Production of regional publications | Regional publications are produced in the form of scientific articles and the *SABONET Report Series* working documents | Publications in the form of scientific articles in journals and the *SABONET Report Series* | Participating and other relevant institutions actively contribute to the production of publications; provide funds for the hiring of national consultants to assist in the preparation of regional and national publications |
| 2.8 | Collaborative field surveys and collecting expeditions in under-surveyed areas within the region | Collaborative collecting expeditions undertaken within the region | Reports, lists of plant taxa collected | Consultants and national/regional staff are available and willing to organise and participate in collecting expeditions; funds for supporting the costs of collecting expeditions are available |
| 3.1 | Computerisation of plant specimens stored in national and regional herbaria and botanical gardens | Database(s) developed, set up and functioning in national herbaria/university herbaria and botanical gardens | National and regional databases in document and disk format | Necessary expertise and funds are available to compile and produce databases |
| 3.2 | Training of herbaria and botanical garden staff in the development and use of database(s) | Training courses run within the region | Reports from training sessions | Functional databases are available, and the necessary expertise is available to present courses and trouble-shoot where necessary |
| 3.3 | Purchasing of computer hardware and software | Computer hardware and software is purchased | Computer hardware and software are set up and functional within the participating institutions | Funds and necessary equipment are available within the region |
| 3.4 | Continual upgrading and improvement of the database(s) | Advanced versions of the database are developed and produced | Upgraded versions of the database(s) are provided on diskette and supplied to the participating institutions | Expertise is available for the development and upgrading of the specific databases |
| 3.5 | Communication between national herbaria and botanical gardens through electronic mail | E-mail communication systems between national herbaria and botanical gardens operating effectively | E-mail installed and working in the national herbaria and botanical gardens of southern Africa | E-mail can be installed in the various national herbaria and botanical gardens in the region; funds are available to install e-mail in the national herbaria and botanical gardens |
| 3.6 | Maps of plant species distributions by region, country, province or ¼ degree grid | Maps of plant species distributions within the region produced | Reports, maps | Information and technical skills are available within the region to produce the necessary maps and reports |
| 3.7 | Digitised vegetation maps of major vegetation types, biomes and ecosystems within the region | Maps produced | Maps | Consultants available to digitise vegetation maps, funding available for the production of the maps |
| 3.8 | Production of relational database in GIS formats | GIS databases produced | GIS system observed as operating, reports | Consultants are available to transfer data into GIS format |
| 4.1 | Preparation of human resource expertise inventories | Inventories prepared and distributed | Lists of experts disaggegated by country, gender, institution, area of expertise, regional or country specialisation, and including indexes such as herbarium address index, scientific names index and specialist index | Willingness of regional staff members to participate in the formulation of inventories |
| 4.2 | Preparation, distribution, collation and analysis of questionnaires to determine the levels of botanical expertise and facilities within the region | Questionnaires developed, mailed and responses collated and analysed | Reports based on findings of questionnaire surveys disaggregated by country, institution, gender | Willingness of regional staff members to participate in the formulation of inventories |

# SABONET LOGICAL FRAMEWORK MATRIX

| | NARRATIVE SUMMARY | VERIFIABLE INDICATORS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|---|---|---|
| 5.1 | Identification of botanical hot-spots, centres of diversity and plant endemism within the region | Plant centres of diversity and endemism identified | Reports from field investigations, reports disaggregated by ecological zones | Technical expertise and funds available for the identification of plant centres of endemism and diversity |
| 5.2 | Identification of priorities for the establishment of *ex situ* living collections within botanic gardens of the region | Priorities for living collections identified | Reports | National and regional expertise available to determine priorities for the establishment of *ex situ* living collections in botanic gardens |
| 5.3 | Identification of under-surveyed/poorly known taxa or areas | Under-surveyed areas and poorly known taxa identified | Reports from National Working Groups | Under-surveyed areas and taxa can be identified based on national and regional data available |
| 5.4 | Evaluation of the conservation status of vegetation types/ ecosystems/biomes per country and region | Evaluations complete and synthesised into reports | Reports, both from National Working Groups and from the region | Evaluations are possible based on technical expertise and availability of funds |
| 5.5 | Production of regional and national flora checklists | Checklists produced and distributed | Regional and national checklists and records of distribution | Information and funds are available to enable staff of national herbaria and botanical gardens to undertake fieldtrips and collect representive plant samples from various parts of the region, funds available for herbarium equipment |
| 6.1 | Strategic Planning Workshop to formulate a Southern African Botanical Gardens Conservation Strategy | Workshop held within the region | Report of the workshop produced by the participating individuals in consultation with the Coordinator | Funds and a suitable venue are available to hold the workshop and produce a report on the proceedings; regional botanical gardens staff are available to attend the workshop |
| 6.2 | Regional survey of botanical gardens | Consultants undertake a survey of regional botanical gardens | Report produced by consultants on visits made to the various regional botanical gardens | Regional technical and financial support is available to undertake the survey |
| 6.3 | Establishment of a working group to prepare the Southern African Botanical Gardens Conservation Strategy | Working group established and hold meetings | Publication of the names of the working group members, copies of minutes from working group meetings, and final report produced by the working group | Funds and the necessary regional technical expertise and willingness to participate are available |
| 6.4 | Production of a Southern African Botanical Gardens Conservation Strategy | Southern African Botanical Gardens Conservation Strategy published | Southern African Botanical Gardens Conservation Strategy is published | Funds, technical expertise and sufficient data and time are available for the working group to produce the publication |

## SECTION E. INPUTS

The project consists of ten participating countries, with distinct participating institutions within each country, and a regional coordination component. This section provides details for the Government contribution in kind, and the donor inputs (GEF/UNDP and USAID/IUCN ROSA) broken down by field of activity.

### 1. National Government inputs to the project

There are three major forms of input, each in kind.

(a) Counterpart staff
(b) Office accommodation
(c) Administrative support

(a) Counterpart staff include professional (administrative, managerial and scientific) and support personnel. Most staff will already be in service and will make part-time contributions to the project.

The main overall decision-making body guiding the project is the Steering Committee. The Steering Committee comprises a member of the national/university herbarium in each participating country, as well as *ex-officio* members outside the Project Coordinator's office, each acting on the committee in a part-time capacity. The Steering Committee is supported by the Project Coordinator, seconded by the Executing Agency, the National Botanical Institute (South Africa), for the full duration of the project. The National Working Groups set up in each participating country are chaired by the lead herbarium (national or university) in each country. Each member of the National Working Group participates in the working group on a part-time capacity. Financial administration, both at the level of the participating institutions and the Finance Department of the National Botanical Institute, is carried out on a part-time basis. Training conducted by personnel working in participating institutions will also be done in a part-time capacity, and, where transport between countries is not involved, will be considered an in kind contribution, with no reimbursement to the individuals from the project.

(b) The National Botanical Institute has made four offices available in the National Herbarium, South Africa - three for the Project Coordinator's office personnel - Project Coordinator, Administrative Assistant and Financial Officer - and an office in the Data Management section of the National Herbarium for the Computer Programmer. Each participating institution will make available suitable office accommodation for participating project staff, both in herbaria and botanic gardens. This includes: office cleaning, maintenance, parking space, utilities (electricity, water) and communications.



Figure 52. **Velcich House, Pretoria National Botanical Garden, South Africa. This venue is used to accommodate participants during SABONET training courses held at South Africa's National Herbarium.**

The National Botanical Institute will also provide training facilities and accommodation for courses and workshops held at the National Herbarium in Pretoria, South Africa. This includes lecture halls, audio-visual equipment, as well as accommodation in the Pretoria National Botanical Garden. Accommodation in the botanic garden is in the form of a 12-room double-storey house providing 12 separate fully-furnished rooms, each with a desk, desk lamp, cupboard space and a bed, bathrooms, dining room, verandah, a fully-furnished kitchen (stove, fridge, cutlery *inter alia*) and a washing machine and tumble dryer. The house also has an air-conditioned training room that can be used for lectures and workshops.

(c) Participating institutions will provide administrative support personnel to assist in the execution of the project at a national level. This will include the provision of secretarial support and assistance as well as the necessary office space and equipment for national working group meetings, visiting consultants and project personnel. Governments will assist in the clearances of project staff, plant material and equipment moving between countries within the region. Participating institutions will also provide suitable skilled operators/drivers for relevant equipment/vehicles and ensure that such equipment is used for project purposes in accordance with UN regulations. Support will also be provided by the participating institutions in the arrangements for Steering Committee meetings, country missions, training courses, workshops and collaborative collecting expeditions held in the host country. A national contribution budget is given in the budget section below.

**2. USAID/IUCN ROSA**

The funds from USAID/IUCN ROSA will be used to support all project activities in both Angola and Namibia, up until such time as these countries have ratified the CBD and are eligible for financial support from the GEF/UNDP. In addition funds from USAID/IUCN ROSA for the period 1 October 1995-30 September 1998 will be used to support the following:

| | |
|---|---|
| **Herbarium Research Officers** | **US$ 208,800** |
| Salary and benefits | |
| Travel costs | |
| Subsistence | |
| **Herbarium Technical Assistants** | **US$ 52,800** |
| Salary and benefits | |
| Travel costs | |
| Subsistence | |
| **Equipment** | **US$ 35,000** |
| Computers and peripherals | |
| **Coordination and Training** | **US$ 120,000** |
| Regional meetings | |
| Travel costs | |
| Coordinator's office expenses | |
| Training courses | |
| **Miscellaneous** | **US$ 30,400** |
| Teaching materials | |
| Transport for field trips | |
| Steering Committee meetings | |
| Planning workshops | |
| ***Total*** | **US$ 447,000** |

Funds from USAID/IUCN ROSA will be used to support the project in the interim period between Preparatory Assistance (PA) funding support from GEF/UNDP and the remainder of the project funds from GEF/UNDP becoming available for use in the project.

**3. Global Environment Facility**

**Personnel** **US$ 2,824,174**

- National experts and consultants
  - ⇨ National experts and consultants will be used to arrange collaborative collecting expeditions, analyse data in preparation for publications
- Personnel in Project Coordinator's office: administrative assistant, financial officer, temporary administrative support
  - ⇨ Administrative assistant: US$ 1,152.00 per month for 57 months
  - ⇨ Financial officer: US$ 1,152.00 per month for 54 months
  - ⇨ Temporary administrative support: 6 months @ 2,174.00 per month
    1997-2001: US$ 1,087.00 per month for 54 months
- HQ monitoring missions, evaluations, Steering Committee meetings, country visits within the region
  - ⇨ HQ Monitoring Missions: 1997-2000, 4 missions @ US$ 5,000.00 per mission
  - ⇨ Tripartite evaluation: 2 Evaluations @ US$ 12,000.00 per evaluation
  - ⇨ Mid-term evaluation: April 1999 @ US$ 30,000.00
  - ⇨ Terminal evaluation: May 2001 @ US$ 30,000.00
  - ⇨ Steering Committee meetings: 10 meetings @ US$10,000.00 per meeting
  - ⇨ Country visits within the region: 1996: US$ 1,630.00 per month for 6 months
    1997-2001: US$ 2,174.00 per month for 54 months
- Workshops
  - ⇨ 9 workshops @ US$ 8,261.00 per workshop
- Professional personnel including Project Coordinator, computer programmer, herbarium research officers, herbarium technical assistants and horticulturists
  - ⇨ Project Coordinator: US$ 2,891.00 per month for 60 months
  - ⇨ Computer Programmer: US$ 2,174.00 per month for 54 months
  - ⇨ Herbarium Research Officers: from March 1998; 33 full-time staff *phased in* over the period March 1998 to June 2001 @ US$ 725.00 each per month
  - ⇨ Herbarium Technical Assistants: from March 1998; 39 full-time staff *phased in* over the period March 1998 to June 2001 @ US$ 362.00 each per month
  - ⇨ Horticulturists: from January 1998; 10 full-time staff @ US$ 725.00 per month

**Training** **US$ 404,130**

- Full-time in-service training for BSc Honours, MSc and/or PhD studies 14 students, 1998-2001 @ US$ 217.39 each per month for 42 months
- In-service training for herbarium research officers, technical assistants, horticulturists and data capturers (for more information on courses, see Annex 3)
  Herbarium management courses
  Botanical Gardens management courses
  Additional courses



Figure 53. **Samira Izidine (Mozambique)(left), André Dombo and Teresa Martins (Angola) attending the Threatened Plants training course held in South Africa, June 1998** (Photo: A. Romanowski).

Courses will be budgeted for as follows (based on 12 participants per course):
5 days: US$ 8,261.00 per course
10 days: US$ 12,174.00 per course
20 days: US$ 20,000.00 per course

- Collaborative field collecting expeditions
  4 Field collecting expeditions @ US$ 20,326.00 per expedition



Figure 54. **Field camp set up during the Aquatic Plants training course held at Mboma Island, Moremi Game Reserve, Okavango Delta, Botswana, in March/April 1998.**



Figure 55. **Drying papers from plant presses during the Aquatic Plants training course held in Botswana, March/April 1998.**

**Equipment and Supplies** **US$ 1,220,466**

- Expendable equipment and materials for project operation
- Vehicles
  - ⇨ Equivalent of ten 4-wheel drive, double cab vehicles @ US$ 30,435.00 per unit, used for nine weeks field work transport per annum with a hired 4-wheel drive vehicle (for each country)
- Computers, printers, software and associated office equipment for data storage and analysis
  - ⇨ Computers, printers and software:

    1996 1 Pentium Notebook and printer @ US$ 3,913.00
    1997 10 units @ US$ 3,260.90 per unit
    1998 10 units @ US$ 3,260.90 per unit
    1999 10 units @ US$ 3,260.90 per unit
    2000 5 units @ US$ 3,260.90 per unit



Figure 56. **Prof. Nagendran working on the computer donated as part of the NETCAB programme to the National University of Lesotho's Herbarium (ROML) in December 1996** (Photo: K. Sadanand).

- Geographic positioning systems (GPS) for accurate site localities
  - ⇨ 1996: 10 purchased @ US$ 587.00 per unit
    1997: 10 purchased @ US$ 587.00 per unit
- Freezers, cabinets, microscopes, and microwave ovens for use in herbaria
  - ⇨ Freezers: 1997: 10 units @ US$ 652.20 per unit
    1998: 10 units @ US$ 652.20 per unit
    Microscopes: 1997: 10 units @ US$ 3,260.90 per unit
    1998: 10 units @ US$ 3,260.90 per unit
    Microwave Ovens: 1997: 10 units @ US$ 434.80 per unit
    Herbarium cabinets: 1997: 50 cabinets @ US$ 217.39 per unit
    1998: 50 cabinets @ US$ 217.39 per unit
    1999: 50 cabinets @ US$ 217.39 per unit



Figure 57. **Many herbaria in southern Africa, with their associated specimens, have been neglected for many years** (Photo: K. Sadanand).

**Miscellaneous** **US$ 207,230**

- Miscellaneous reporting costs
  - ⇨ Terminal Report: US$ 1,500.00
  - ⇨ Technical Reports:
    *SABONET News* (Project newsletter) US$ 652.00 per issue
    *SABONET Report Series* US$ 3,043.00 per issue

## SECTION F. RISKS

The project depends to a large degree on the infrastructural and institutional support in the various participating countries. Should this support deteriorate, for whatever reason, it may prove difficult to achieve many of the anticipated outputs on a regional level. There is also an element of risk in achieving the integration and coordination goals of the project, both at a national and regional level. The role of the Coordinator will be crucial in this regard in overall coordination, and the National Working Groups similarly on a national level.

Past experience shows that, as a result of the extreme scarcity of technically qualified and within-country trained specialists on biodiversity in southern Africa, the project trainees become prime targets for agencies recruiting such expertise for EIAs, ecotourism projects, and consultancies, amongst others. Paradoxically, the problem will not be one of ensuring long term employment for the trainees, but rather of retaining them within the botanical diversity institutions, and within the region. This risk is not a reason for stopping the project but is rather a challenge to the participating institutions to devise ways in which their staff can contribute to such exercises from within their institutions, so retaining and building the institutional expertise, as well as enhancing the financial viability of these institutions and thus also the sustainability of project benefits.

Angola and Namibia might be delayed in ratification of the CBD. Should this be the case, funding from other sources will be sought.

## SECTION G. PRIOR OBLIGATIONS AND PREREQUISITES

### G.1 Prior Obligations

Ratification of the CBD is a pre-condition for GEF/UNDP assistance. The CBD must be ratified by the governments of Angola and Namibia before GEF/UNDP funds can be used in these countries.

### G.2 Prerequisites

No actions or inputs from governments or NGOs involved in this project are considered necessary as prerequisites. The signatures of governments to this document indicate their agreement to provide the counterpart support, including the provision of appropriate office space, required for project implementation.

## SECTION H. PROJECT REVIEW, REPORTING AND EVALUATION

(a) The project will be subject to tripartite review (joint review by representatives of the Government, executing agency and UNDP) at least once every 12 months, the first such meeting to be held within the first 12 months of the start of full implementation. The regional Project Coordinator and/or senior project officer of the United Nations executing agency, supported by the National Working Groups, shall prepare and submit to each tripartite review meeting an Annual Programme/Project Report (APR). Additional APRs may be requested, if necessary, during the project.

(b) A project terminal report will be prepared for consideration at the terminal tripartite review meeting. It shall be prepared in draft sufficiently in advance to allow review and technical clearance by the executing agency at least four months prior to the terminal tripartite review.The assignment of responsibility for the preparation of a terminal report will be reflected in subsequent revisions of the Project Document.

The project shall be subject to evaluation 12 months after the start of full implementation (three months prior to the scheduled termination). The organisation, terms of reference and timing will be decided after consultation between the parties to the Project Document, plus any associated United Nations agency.

A time schedule of reviews, reports and evaluations is attached as Annex 2.

## SECTION I. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the individual Governments and the United Nations Development Programme, signed by the parties on the dates mentioned below:

| COUNTRY | DATE OF SIGNATURE | EFFECTIVE DATE |
|---|---|---|
| *Angola* | *18 February 1977* | *18 February 1977* |
| *Botswana* | *14 May 1975* | *14 May 1975* |
| *Lesotho* | *31 December 1974* | *17 December 1976* |
| *Malawi* | *15 July 1977* | *15 July 1977* |
| *Mozambique* | *15 September 1976* | *15 September 1976* |

| | | |
|---|---|---|
| *Namibia* | *22 March 1990* | *22 March 1990* |
| *South Africa* | *3 October 1994* | *3 October 1994* |
| *Swaziland* | *28 October 1977* | *28 October 1977* |
| *Zambia* | *14 October 1983* | *14 October 1983* |
| *Zimbabwe* | *27 May 1980* | *27 May 1980* |

The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The following types of revisions may be made to this Project Document with the signature of the UNDP only, provided the UNDP is assured that the other signatories of the Project Document have no objections to the proposed changes:

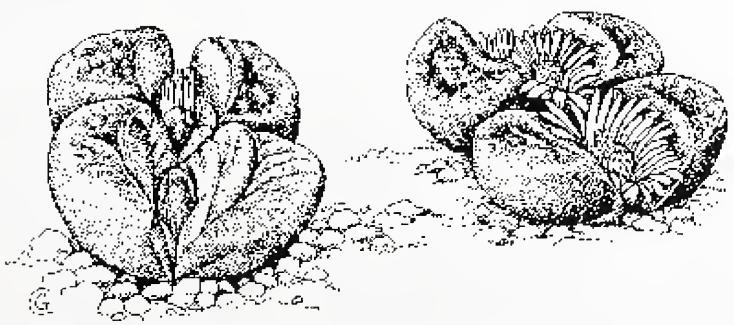
(a) Revisions in, or addition of, any of the annexes of the Project Document;

(b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and

(c) Mandatory annual revisions which rephase the delivery of agreed project inputs, or reflect increased expert or other costs due to inflation, or take into account agency expenditure flexibility.

## SECTION J. BUDGET

See Project Budget covering the UNDP contribution overleaf. The 'in kind' national government inputs to the project are listed in Annex 11.



*Lithops naureeniae* (Mesembryanthemaceae) drawn by Gillian Condy.
From *List of Southern African succulent plants* (Smith *et al.* 1997).

**REVISED BUDGET COVERING UNDP CONTRIBUTION**
**SUMMARY (US Dollars)**

**Project Title:** **Inventory, Evaluation and Monitoring of Botanical Diversity in Southern Africa: A Regional Capacity and Institution Building Network (SABONET)**

**Project Number: RAF/97/G33/A/1G/99**

| B/L | Description | 1998 | 1999 | 2000 | 2001 | 2002 | TOTAL |
|---|---|---|---|---|---|---|---|
| **13.00** | **Administrative Support Personnel** | | | | | | |
| 13.01 | Administrative Assistant | 16,470.00 | 12,182.00 | 12,826.00 | 13,826.00 | 6,913.00 | 62,217.00 |
| 13.02 | Financial Assistant | 13,826.00 | 14,826.00 | 12,826.00 | 13,826.00 | 6,913.00 | 62,217.00 |
| 13.03 | Temporary administrative support | 4,000.00 | 22,088.00 | 13,043.00 | 13,043.00 | 6,522.00 | 58,696.00 |
| **13.99** | **Sub-total: Administrative support** | 34,296.00 | 49,096.00 | 38,695.00 | 40,695.00 | 20,348.00 | 183,130.00 |
| **16.00** | **Mission Costs** | | | | | | |
| 16.01 | HQ Monitoring mission | | 5,000.00 | 5,000.00 | 5,000.00 | 5,000.00 | 20,000.00 |
| 16.02 | Tripartite Evaluation | | 12,000.00 | | 12,000.00 | | 24,000.00 |
| 16.03 | Mid-term Evaluation | | | 30,000.00 | | | 30,000.00 |
| 16.04 | Terminal Evaluation | | | | | 30,000.00 | 30,000.00 |
| 16.05 | Sabonet Steering Committee | 45,000.00 | 15,000.00 | 20,000.00 | 10,000.00 | | 90,000.00 |
| 16.06 | Country visits within the region | 19,665.00 | 26,087.00 | 26,087.00 | 32,509.00 | 13,043.00 | 117,391.00 |
| 16.07 | Workshops | 2,000.00 | 31,043.00 | 16,522.00 | 16,522.00 | | 66,087.00 |
| **16.99** | **Sub-total: Mission costs** | 66,665.00 | 89,130.00 | 97,609.00 | 76,031.00 | 48,043.00 | 377,478.00 |
| **17.00** | **NPPP** | | | | | | |
| 17.01 | Project Coordinator | 69,392.00 | 34,696.00 | 34,696.00 | 13,346.00 | 4,000.00 | 156,130.00 |
| 17.02 | Computer programmer | 5,000.00 | 26,087.00 | 53,695.00 | 26,087.00 | 6,522.00 | 117,391.00 |
| 17.03 | Herbarium Research Officers | 20,000.00 | 254,565.00 | 243,391.00 | 286,957.00 | 71,739.00 | 876,652.00 |
| 17.04 | Herbarium technical assistants | 20,000.00 | 94,782.00 | 130,435.00 | 169,565.00 | 42,392.00 | 457,174.00 |
| 17.05 | Horticulturists | | 108,585.00 | 86,870.00 | 86,870.00 | 21,718.00 | 304,043.00 |
| 17.06 | National Experts | 7,000.00 | 51,695.00 | 26,087.00 | 26,087.00 | 6,522.00 | 117,391.00 |
| 17.07 | National Consultants | | 117,391.00 | 52,174.00 | 52,174.00 | 13,044.00 | 234,783.00 |
| **17.99** | **Sub-total: NPPP** | 121,392.00 | 687,801.00 | 627,348.00 | 661,086.00 | 165,937.00 | 2,263,564.00 |
| **19.00** | **Personnel component total** | 222,353.00 | 826,027.00 | 763,652.00 | 777,812.00 | 234,328.00 | 2,824,172.00 |
| **33.00** | **IN-SERVICE TRAINING** | | | | | | |
| 33.01 | Herbarium Management Courses | 73,640.00 | 40,435.00 | 37,882.00 | | | 151,957.00 |
| 33.02 | Botanical Gardens Management Courses | | 12,174.00 | 18,698.00 | 12,174.00 | | 43,046.00 |
| 33.03 | Field collecting expeditions | 6,000.00 | 34,652.00 | 20,326.00 | 20,326.00 | | 81,304.00 |
| 33.04 | MSc and PhD studies | | 45,651.00 | 36,522.00 | 36,522.00 | 9,131.00 | 127,826.00 |
| **33.99** | **Sub-total: In service training** | 79,640.00 | 132,912.00 | 113,428.00 | 69,022.00 | 9,131.00 | 404,133.00 |
| **39.00** | **Training component total** | 79,640.00 | 132,912.00 | 113,428.00 | 69,022.00 | 9,131.00 | 404,133.00 |
| **40.00** | **EQUIPMENT** | | | | | | |
| 41.00 | Expendable equipment | | | | | | |
| 41.01 | National herbaria | 40,000.00 | 106,739.00 | 65,217.00 | 65,217.00 | 16,305.00 | 293,478.00 |
| 41.02 | Coordinator's office | 26,087.00 | 13,043.00 | 6,522.00 | 9,783.00 | 3,261.00 | 58,696.00 |
| **41.99** | **Sub-total: Equipment** | 66,087.00 | 119,782.00 | 71,739.00 | 75,000.00 | 19,566.00 | 352,174.00 |
| 42.00 | Non-expendable equipment | | | | | | |
| 42.01 | Computers and peripherals | 44,609.00 | 32,609.00 | 20,609.00 | 16,303.00 | | 114,130.00 |
| 42.02 | Geographic Positioning Systems | 5,870.00 | | | | | 5,870.00 |
| 42.03 | Freezers | 6,522.00 | 6,521.00 | | | | 13,043.00 |
| 42.04 | Microscopes | 32,609.00 | 32,608.00 | | | | 65,217.00 |
| 42.05 | Microwave ovens | 4,348.00 | | | | | 4,348.00 |
| 42.06 | Herbarium cabinets | 10,870.00 | 10,870.00 | 10,869.00 | | | 32,609.00 |
| 42.07 | Vehicles | 304,348.00 | | | | | 304,348.00 |
| **42.99** | **Sub-total: Non-expendable Equipment** | 409,176.00 | 82,608.00 | 31,478.00 | 16,303.00 | - | 539,565.00 |
| 45.00 | Operation and Maintenance of equipment | | | | | | |
| 45.01 | Vehicles | | 58,695.00 | 52,174.00 | 52,174.00 | 9,783.00 | 172,826.00 |
| 45.02 | Other equipment | 31,304.00 | 38,820.00 | 39,130.00 | 39,130.00 | 7,516.00 | 155,900.00 |
| **45.99** | **Sub-total** | 31,304.00 | 97,515.00 | 91,304.00 | 91,304.00 | 17,299.00 | 328,726.00 |
| **49.00** | **Equipment Component Total** | 506,567.00 | 299,905.00 | 194,521.00 | 182,607.00 | 36,865.00 | 1,220,465.00 |
| **50.00** | **MISCELLANEOUS** | | | | | | |
| **52.00** | **Reporting Costs** | | | | | | |
| 52.01 | Terminal reports | | | 1,500.00 | | | 1,500.00 |
| 52.02 | Technical reports | 29,566.00 | 8,696.00 | 8,696.00 | 7,390.00 | | 54,348.00 |
| **52.99** | **Sub-total** | 29,566.00 | 8,696.00 | 10,196.00 | 7,390.00 | - | 55,848.00 |
| 53.00 | Sundries | 14,144.00 | | | | | 14,144.00 |
| 54.00 | Support costs | | | | | | |
| 54.01 | UNDP country offices (3% pro rata) | 25,297.00 | 38,245.00 | 32,624.00 | 33,226.00 | 7,846.00 | 137,238.00 |
| **59.00** | **Miscellaneous Component Total** | 69,007.00 | 46,941.00 | 42,820.00 | 40,616.00 | 7,846.00 | 207,230.00 |
| **99.00** | **GRAND TOTAL** | 877,567.00 | 1,305,785.00 | 1,114,421.00 | 1,070,057.00 | 288,170.00 | 4,656,000.00 |

## SECTION K. ANNEXES

## ANNEX 1. *Workplan*

| 1996 | |
|---|---|
| March | First Steering Committee Meeting, Pretoria, South Africa (5-6 March)<br>USAID/IUCN ROSA co-funding support (USD447 000) provided via the NETCAB Programme Phase 1 (1 October 1995 - 30 September 1998) |
| April | SABONET's Quarterly Financial Statement and Advance Request submitted to NETCAB (15 April) |
| May | |
| June | Project Coordinator appointed and assumes duty, National Herbarium, Pretoria, South Africa (1 June)<br>Coordinator attended the Southern African Herbarium Working Group meeting, Natal Herbarium, Durban, South Africa (6-7 June)<br>Temporary assistant appointed to the Coordinator's office (19 June - 4 October)<br>Meeting with NETCAB Programme Manager, National Herbarium, South Africa (21 June) |
| July | Coordinator and GF Smith visited National Herbarium, Windhoek, Namibia (3-5 July)<br>Coordinator and GF Smith visited Swaziland National Herbarium and Malolotja Nature Reserve, Swaziland (8-10 July); new acronym obtained from Pat Holmgren (New York) for the National Herbarium of Swaziland (SDNH)<br>Coordinator, BJ Huntley and GF Smith visited National Herbarium of Malawi, Zomba, Malawi (16-18 July)<br>SABONET's Quarterly Financial Statement and Advance Request submitted to NETCAB (15 July)<br>Specimen Database Workshop, Pretoria, South Africa (22-23 July)<br>Training Course Planning Workshop, Pretoria, South Africa (24-26 July)<br>Coordinator, BJ Huntley and GF Smith visited herbaria in Gaborone, Botswana (30 July - 1 August); new acronym obtained from Pat Holmgren (New York) for the Peter Smith Herbarium, Maun (PSUB) |
| August | Coordinator, BJ Huntley and GF Smith visited the National Herbarium and Botanic Garden, Harare, Zimbabwe (14-16 August)<br>SABONET's Semi-Annual Workplan submitted to NETCAB Programme Manager (23 August)<br>*SABONET News* Vol.1 No.1 (30 August) 1st edition, 8 pp. |
| September | Second Steering Committee Meeting, Cape Town, South Africa (19-20 September) |
| October | Administrative assistant, Mrs Mmabatho Phuduhudu, appointed in Coordinators office (1 October)<br>Data capturer employed to put Lebrun & Stork (Tropical African Flora, 1991) (Volumes I and II) data into the PRECIS Specimen Database<br>Coordinator and GF Smith visited herbaria in Roma and Maseru, Lesotho (1-3 October)<br>Preparation of the GEF Project Document<br>NETCAB Financial Advance Request & Financial Statement (July-September) submitted (15 October)<br>NETCAB Semi-Annual Progress & Assessment Report submitted (28 October)<br>Coordinator and BJ Huntley attended a GEF Project Development Workshop, Pretoria, South Africa (30 October) |
| November | Data capturer employed to put Lebrun & Stork (Tropical African Flora, 1991) (Volumes I and II) data into Specimen Database<br>First Herbarium Management and Plant Conservation training course, National Herbarium, South Africa (five weeks, 4 November - 6 December) |
| December | Computer equipment purchased through the NETCAB Programme and sent per courier to participating countries, excluding Namibia (6 December) |

| 1997 | |
|---|---|
| January | Draft GEF Project Document prepared and submitted to UNDP & countries for comment (3 January)<br>Coordinator to attend the NETCAB Sub-grantees & Steering Committee meetings, Harare, Zimbabwe<br>*SABONET News* Vol.1 No.2 (25 January) 2nd edition, 16 pp.<br>Survey of southern African Botanic Gardens (Malawi (Lilongwe, Zomba), Zimbabwe)<br>NETCAB Financial Advance Request & Financial Statement submitted (15 January)<br>Prepare Agenda for SSC3, courier documentation to participants |
| February | 3rd SSC meeting, Harare, Zimbabwe (5 February)<br>SSC members attend XVth AETFAT Congress (3-7 February), University of Zimbabwe, Harare<br>4th Semi-Annual Workplan (1 April-30 September) submitted to NETCAB (21 February)<br>Country visit by Coordinator, GF Smith and Chairman to Mozambique (25-27 February) |
| March | *Southern African National Herbaria: Status Reports, 1996* published as *SABONET Report Series* No.1, 59 pp.<br>Report entitled *SABONET Accomplishments and their significance* submitted to USAID/RCSA office for inclusion in their annual report to USAID, Washington, USA (13 March)<br>National Grass Identification training course, Windhoek, Namibia (3-7 March)<br>National PRECIS Specimen Database training course, National Herbarium, Windhoek, Namibia (11-13 March)<br>Coordinator to attend the NETCAB Sub-grantees meeting, Harare, Zimbabwe (13-14 March)<br>Country visit by Coordinator, GF Smith and Chairman to Zambia (24-26 March) |
| April | *SABONET News* Vol.2 No.1 (30 April) 3rd edition, pages 1-44<br>Computer purchased for Peter Smith Herbarium (PSUB), Harry Oppenheimer Okavango Research Centre, Maun, Botswana<br>NETCAB Financial Advance Request & Financial Statement submitted (15 April)<br>NETCAB Semi-Annual Progress & Assessment Report submitted (28 April) |
| May | First meeting of southern African Plant Database Managers (South Africa) (19-30 May)<br>Administrative assistant attached to the Coordinator's office resigns |
| June | Country visit by Coordinator and Chairman to Namibia and Angola (Luanda, Lubango) (4-14 June); new acronym obtained from Pat Holmgren (New York) for the Lubango Herbarium, Angola (LUBA) |
| July | Coordinator to make presentation on SABONET to the NBI Research Advisory Committee (17 July)<br>NETCAB Financial Advance Request & Financial Statement submitted (10 July)<br>Coordinator to make presentation on SABONET to staff of Kirstenbosch Research Centre, NBI, Cape Town (30 July) |
| August | *SABONET News* Vol.2 No.2 (29 August) 4th edition, pages 45-80<br>Second Herbarium Management training course, National Herbarium, South Africa (three weeks)(4-22 August)<br>SABONET Financial Officer, Ms Carina Haasbroek, assumes duty in the Coordinator's Office (1 August)<br>Interim Semi-Annual Progress and Assessment Report submitted to NETCAB (15 August)<br>5th Semi-Annual Workplan (1 October 1997 - 31 March 1998) submitted to NETCAB (22 August)<br>Prepare Agenda for SSC4, courier documentation to participants |
| September | Coordinator to attend the Annual Southern African Herbarium Working Group meeting held at the Albany Museum, Grahamstown, South Africa (10-11 September)<br>SABONET Project Document approved and endorsed by the GEF CEO (Washington, USA)<br>4th SSC meeting (29 September, Ku Chawe Inn, Zomba, Malawi)<br>*Index herbariorum: southern African supplement* published as *SABONET Report Series* No.2, 55 pp.<br>G Hughes (Director: Finance, NBI) and Ms C Haasbroek to attend a One-Day Workshop on the Financial Administration of the NETCAB Programme, Harare, Zimbabwe (11 September)<br>Financial statement submitted to UNDP Resident Representative |
| October | SABONET's Monitoring and Evaluation Plan to be submitted to NETCAB (6 October)<br>NETCAB Semi-Annual Progress & Assessment Report submitted (23 October)<br>NETCAB Financial Advance Request & Financial Statement submitted (10 October)<br>GF Smith and Coordinator to initiate the expansion and updating of the *Index herbariorum: southern African supplement*, and include those herbaria not included in the first edition |
| November | Botanical Nomenclature and Pteridophyte Identification Training Course, Zomba, Malawi (10-18 November)<br>Preparation and mailing of Plant Taxonomic Expertise Questionnaire<br>Progress and Assessment Report submitted to NETCAB (24 November)<br>Coordinator to initiate the preparation of a *Bibliography of Plant Conservation in southern Africa* |
| December | *SABONET News* Vol.2 No.3 (15 December) 5th edition, pages 81-131<br>Grass Identification Course, Roma, Lesotho (7-12 December) |

| 1998 | |
|---|---|
| January | NETCAB Financial Advance Request & Financial Statement submitted (10 January)<br>Coordinator to attend the South African Association of Botanists (SAAB) 24th Annual Congress at the University of Cape Town, South Africa (12-16 January)<br>SABONET Project Document signed by Prof. Brian Huntley (Chairman, SSC) and Mr David Whaley (UNDP-SA Resident Representative) at Department of Environmental Affairs and Tourism, Pretoria, South Africa (20 January) |
| February | Coordinator to attend the International Workshop entitled "Removing the Taxonomic Impediment" in Darwin, Australia (3-5 February)<br>Coordinator to give presentations on SABONET at the Australian National Botanic Gardens (Canberra, ACT) and the Western Australian Herbarium (Perth, Western Australia)<br>NETCAB Mid-term Evaluation (mid-February)<br>Conduct Southern African Herbarium Needs Assessment (February - December 1998)<br>Questionnaires distributed for the Southern African Herbarium Needs Assessment<br>6th Semi-Annual Workplan (1 April - 30 September) submitted to NETCAB<br>Prepare Agenda for SSC5, courier documentation to participants |
| March | Aquatic Plants Training Course, Moremi Game Reserve, Okavango Swamps, Botswana (27 March - 9 April) |
| April | Official starting date of the SABONET Project as a GEF Project Implemented by the UNDP (1 April)<br>Aquatic Plants Training Course, Moremi Game Reserve, Okavango Swamps, Botswana (27 March - 9 April)<br>*SABONET News* Vol.3 No.1 (23 April) 6th edition, pages 1-52<br>NETCAB Mid-term Evaluation Report published (16 April)<br>5th meeting of the SSC (27 April, Gaborone, Botswana)<br>NETCAB Semi-Annual Progress & Assessment Report submitted |
| May | *PRECIS Specimen Database User Guide* published as *SABONET Report Series* No.3, 130 pp.<br>*Index herbariorum: southern African supplement* Second Edition: Coordinator and GF Smith to personally visit regional herbaria not included in the first edition (May - December)<br>GF Smith and Coordinator visit herbaria (Matopos Research Station Herbarium (Matopos), Natural History Museum Herbarium (Bulawayo) and the Chase Herbarium, Mutare) in Zimbabwe (18-20 May)<br>Teresa Martins (NETCAB Fellowship recipient) returns from Portugal to Luanda, Angola (78-page report produced) |
| June | 2nd southern African Plant Database Managers training course, National Herbarium, Pretoria, South Africa (1-5 June)<br>Threatened Plants (Red Data Lists) Training Course, National Herbarium, South Africa (8-12 June)<br>GF Smith and Coordinator visit herbaria in Kitwe and Mfuwe, Zambia (30 June - 3 July) |
| July | GF Smith and Coordinator visit herbaria in Kitwe and Mfuwe, Zambia (30 June - 3 July)<br>Conduct Southern African Botanic Gardens Needs Assessment (July - December)<br>Botanic Gardens Needs Assessment survey, National Botanic Garden, Windhoek, Namibia (14-16 July)<br>Botanic Gardens Needs Assessment survey, Zomba National Botanic Garden, Zomba, Malawi (20-22 July) |
| August | GF Smith and Coordinator attend the South(ern) African Systematics Society meeting, University of Pretoria, South Africa (6-7 August)<br>Survey of herbaria in Northern Province, South Africa, for Second Edition of *Index herbariorum: southern African supplement* (11-13 August)<br>Botanic Gardens Needs Assessment survey, National Botanic Garden, Harare, Zimbabwe (17-19 August)<br>*SABONET News* Vol.3 No.2 (30 August) 7th edition, pages 53-116<br>Prepare Agenda for SSC6, documentation to participants |
| September | IOS International Congress, Kirstenbosch (31 August - 4 September)<br>International Workshop on the implementation of the *Global Taxonomy Initiative* (GTI), London, UK (10-11 September)<br>5th BGCI International Congress, Kirstenbosch (14-18 September)<br>6th meeting of the SSC (16 September, Kirstenbosch, Cape Town, South Africa)<br>Southern African Herbarium Working Group (SAHWG) meeting, Grahamstown, South Africa (22-23 September)<br>NETCAB Phase 1 ends (30 September) |
| October | NETCAB Phase 2 starts (1 October)<br>NETCAB Semi-Annual Progress & Assessment Report submitted (24 October)<br>Needs Assessment survey of southern African botanic gardens |
| November | Needs Assessment survey of southern African botanic gardens |
| December | *SABONET News* Vol.3 No.3 (15 December) 8th edition<br>Annual Programme/Project Report (APR) submitted to UNDP<br>Needs Assessment survey of southern African botanic gardens |

| 1999 | |
|---|---|
| January | Grass identification training course (Harare, Zimbabwe)(5 days)<br>*Southern African Herbarium Needs Assessment* published as number in the *SABONET Report Series*<br>*Southern African plant taxonomic and related projects* published as number in the *SABONET Report Series* |
| February | *Index herbariorum: southern African supplement* 2nd edition published as number in the *SABONET Report Series*<br>Prepare Agenda for SSC7, courier documentation to participants |
| March | 7th meeting of the SSC (Zambia)<br>UNDP Tripartite Review (30 March) |
| April | *SABONET News* Vol.4 No.1 (30 April) 9th edition<br>Miombo Dominants Identification Course (Kitwe, Zambia)(8-10 days) |
| May | |
| June | UNDP/GEF Project Implementation Review (PIR) submitted to UNDP (15 June) |
| July | 3rd Database Managers meeting<br>SABONET Website established |
| August | 3rd Herbarium Management training course<br>*SABONET News* Vol.4 No.2 (30 August) 10th edition<br>Prepare Agenda for SSC8, courier documentation to participants |
| September | 8th meeting of the SSC (Maputo, Mozambique) |
| October | EIA training course (Lesotho) |
| November | Collaborative collecting expedition to Nyika plateau (Malawi/Zambia) |
| December | *SABONET News* Vol.4 No.3 (15 December) 11th edition<br>Annual Programme/Project Report (APR) submitted to UNDP (1 December) |

| 2000 | |
|---|---|
| January | |
| February | Prepare Agenda for SSC9, courier documentation to participants |
| March | 9th meeting of the SSC (Windhoek, Namibia) |
| April | *SABONET News* Vol.5 No.1 (30 April) 12th edition<br>UNDP Mid-term Project Evaluation (1 April) |
| May | 4th Herbarium Management training course |
| June | UNDP/GEF Project Implementation Review (PIR) submitted to UNDP (15 June) |
| July | 4th Database Managers meeting |
| August | *SABONET News* Vol.5 No.2 (30 August) 13th edition<br>Prepare Agenda for SSC10, courier documentation to participants |
| September | 10th meeting of the SSC (Swaziland) |
| October | |
| November | Collaborative collecting expedition (Namibia/Angola) |
| December | *SABONET News* Vol.5 No.3 (15 December) 14th edition<br>Annual Programme/Project Report (APR) submitted to UNDP (1 December) |

| 2001 | |
|---|---|
| January | |
| February | Prepare Agenda for SSC11, courier documentation to participants |
| March | 11th meeting of the SSC (Lesotho) |
| April | *SABONET News* Vol.6 No.1 (30 April) 15th edition<br>UNDP Tripartite Review (TPR)(1 April) |
| May | |
| June | UNDP/GEF Project Implementation Review (PIR) submitted to UNDP (15 June) |
| July | |
| August | *SABONET News* Vol.6 No.2 (30 August) 16th edition<br>Prepare Agenda for SSC12, courier documentation to participants |
| September | 12th meeting of the SSC (Zimbabwe, Malawi)<br>NETCAB Phase 2 ends (30 September) |
| October | |
| November | |
| December | *SABONET News* Vol.6 No.3 (15 December) 17th edition |

| 2002 | |
|---|---|
| January | Project Terminal Report submitted to UNDP (15 January) |
| February | Prepare Agenda for SSC13, courier documentation to participants |
| March | 13th and final meeting of the SSC (South Africa)<br>UNDP Terminal Tripartite Review (1 March)<br>Project under GEF/UNDP funding support officially ends (31 March) |
| April | *SABONET News* Vol.7 No.1 (30 April) 18th and final edition |

ANNEX 2. *Schedule for Project Reviews, Reporting and Evaluation*

**Starting Date: 1 April 1998**

| **Report/Review/Evaluation** | **Submission Date** |
|---|---|
| Annual Programme/Project Report (APR) | 1 December 1998 |
| Tripartite Review (TPR) | 30 March 1999 |
| UNDP/GEF Project Implementation Review (PIR) | 15 June 1999 |
| Annual Programme/Project Report (APR) | 1 December 1999 |
| Mid-term Project Evaluation | 1 April 2000 |
| UNDP/GEF Project Implementation Review (PIR) | 15 June 2000 |
| Annual Programme/Project Report (APR) | 1 December 2000 |
| Tripartite Review (TPR) | 1 April 2001 |
| UNDP/GEF Project Implementation Review (PIR) | 15 June 2001 |
| Project Terminal Report | 15 January 2002 |
| Terminal Tripartite Review | 1 March 2002 |

## ANNEX 3. *Training Programme*

### IN-SERVICE TRAINING COURSES

#### 1. Herbarium Management and Plant Conservation

***Objective***: To introduce staff working in southern African herbaria to the basic principles of herbarium management, collecting and plant conservation

***Duration***: three weeks

***Responsible party***: to be determined

***Location***: Southern African National Herbaria

***Topics***:

- Centralised accessioning, recording and dispatch procedures
- Arrangement of herbarium collections
- Handling herbarium specimens
- Curation of special groups
- Duplicate distribution
- Loans to other institutions
- Essential herbarium literature
- Pests and treatments
- Label design and production
- Checklists
- Illustration
- Collectors, itineraries, maps and gazetteers
- Collecting, pressing and mounting herbarium specimens
- Photography and fieldwork
- Southern African Plant Centres of Diversity and Endemism
- Compilation of Red Data Books
- Monitoring of threatened plants *in situ*

***Eligibility***: Staff from southern African herbaria

***Language***: English

#### 2. Plant Identification Courses

***Objective***: To train staff working in southern African herbaria to identify certain groups of plants (growth forms or plant families)

***Duration***: 1-2 weeks

***Responsible party***: to be determined

***Location***: Southern African National Herbaria

***Topics***: course-specific

*Eligibility*: Staff from southern African herbaria

*Language*: English

**3. Plant Taxonomy and Botanical Nomenclature**

*Objective*: To introduce staff working in southern African herbaria to the basic principles of plant taxonomy and botanical nomenclature

*Duration*: one week

*Responsible party*: to be determined

*Location*: Southern African National Herbaria

*Topics*:
- Historical Overview
- Nomenclature
- Botanical Names
- Botanical Descriptions
- Process of Identification
- Process of Classification
- Phenetic Classification
- Cladistic Classification

*Eligibility*: Staff from southern African herbaria

*Language*: English

**4. Environmental Impact Assessments**

*Objective*: To introduce staff working in southern African herbaria to the basic principles of the Integrated Environmental Management procedure in general, and Environmental Impact Assessments in particular.

*Duration*: 2-3 weeks

*Responsible party*: to be determined

*Location*: Southern African National Herbaria

*Topics*:
- The Integrated Environmental Management Procedure
- Guidelines for Scoping
- Involvement of authorities and interested and affected parties
- Participation approach
- Report Requirements for Impact Assessment
- Management plans, monitoring and environmental contracts
- Guidelines for report writing
- Guidelines for Review
- Checklist of environmental characteristics

***Eligibility***: Staff from southern African herbaria

***Language***: English

Additional courses offered will depend on the needs of the various participating institutions, and may include:

1. ***Plant Horticulture***
2. ***Botanic Garden Management***
3. ***Development and Management of Plant Information Databases***
4. ***Analysis and evaluation of plant centres of endemism and diversity***
5. ***Ethnobotanical survey and analysis***
6. ***Introductory course in plant genetic resource databasing and gene banking***
7. ***Introduction to vegetation classification and mapping using satellite imagery and other techniques.***

## ANNEX 4. *Preliminary Equipment Requirements*

1. Equivalent of nine weeks field work transport per annum with a four-wheel drive vehicle (for each country)
2. Herbarium Equipment and Materials
3. Desktop Computers/Printers (including Uninterrupted Power Supply (UPS)) units
4. Equipment for Coordinator's office (notebook, desktop computers, relevant software and laser printers, rental of photocopier/fax machine)
5. E-mail linkages (where needed)
6. 10 Geographical Positioning Systems (GPS)(one per country)
7. Microscopes
8. 10 Freezers (one per country)
9. 10 Microwave ovens (one per country)
10. Camera and camera equipment (one set per country)

Additional equipment requirements may arise as the project progresses.

## ANNEX 5. *Job Descriptions*

*Project Coordinator*

**Duties:**

- Ensures the timely and effective implementation of all components of the project
- Coordinates and facilitates in-service training courses, workshops and collaborative collecting expeditions
- Facilitates the Steering Committee meetings, providing documentation and supplying minutes arising from the meeting
- Coordinates the publication of the *SABONET Report Series* and acts as editor for the project newsletter, *SABONET News*
- Responsible for media coverage, advertising and press releases for the project




Figure 58. **The official project newsletter, *SABONET News*, is published three times per year and distributed to individuals and institutions in over 65 countries around the world** (Photo: A. Romanowski).




Figure 59. **The first number (now out of print) in the occasional *SABONET Report Series*, published March 1997.**




Figure 60. ***Index herbariorum: southern African supplement*, number 2 in the *SABONET Report Series*, published in September 1997.**

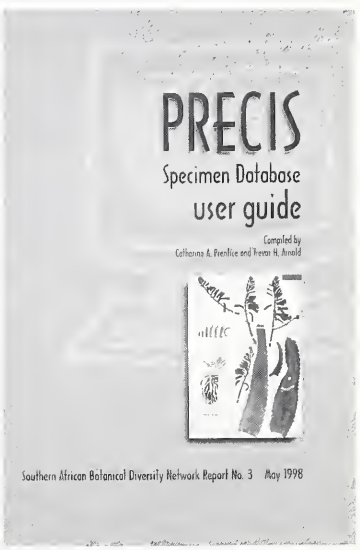



Figure 61. **The *PRECIS Specimen Database User Guide*, number 3 in the *SABONET Report Series*, published in May 1998.**

*Administrative Assistant*

**Duties:**

- ⇨ Provides administrative support to the Project Coordinator, including travel and accommodation arrangements
- ⇨ Responds to queries from the public
- ⇨ Minute secretary to the Steering Committee
- ⇨ Handling of correspondence from the Project Coordinator's office
- ⇨ Typing
- ⇨ Assists the Coordinator in the administration and coordination of training courses, workshops and collaborative collecting expeditions
- ⇨ Carry out any duties assigned to him/her by the Project Coordinator

*National Working Groups*

**Duties:**

- ⇨ Oversee and coordinate the in-country project activities and make recommendations to the Steering Committee
- ⇨ Review the in-country Annual Programme/Project Report (APR) prepared by the participating institutions
- ⇨ Review membership of the National Working Group
- ⇨ Monitor allocation of funds to in-country activities
- ⇨ Monitor progress of in-country trainee(s), with recommendations to the Steering Committee

*Project Financial Officer*

**Duties:**

- ⇨ Responsible for overall financial management and reporting
- ⇨ Facilitates annual audits for donor agencies
- ⇨ Preparation of budgets
- ⇨ Liaison with banks
- ⇨ Foreign exchange transactions
- ⇨ Ensuring that the NBI Accounts Department is provided with the necessary documentation for bookkeeping purposes
- ⇨ Deal with people and problem-solving
- ⇨ Monitoring and coordinating financial reports from participating institutions

*Herbarium Research Officer (BSc Degree)*

**Duties:**

- ⇨ Participate in the management of the plant collection in the herbarium by ensuring that the plant collection is (a) free from pests and damage, (b) labelled with up-to-date scientific names, (c) properly filed, and (d) readily available to the research community
- ⇨ Participate in the computerisation of herbarium specimens
- ⇨ Undertake research programmes in collaboration with other national and international organisations in order to ensure that the knowledge and understanding of the national flora and vegetation is adequate to meet all conservation, utilisation and management requirements
- ⇨ Conduct vegetation surveys for the herbarium and other clients, and contribute to the writing of the Flora of the country

- ⇨ Provide information on the vegetation of the country, plant identifications and an advisory service to students, researchers and members of the public
- ⇨ Carry out any other duties assigned by the head of the institution

***Herbarium Technical Assistant (National Diploma)***

**Duties:**

- ⇨ Participate in the management of the plant collection in the herbarium by ensuring that the plant collection is free from pests and damage
- ⇨ Incorporation of new/returned specimens into the herbarium collection, selection and dispatch of specimens to other institutions, and the collection/expansion of specimens
- ⇨ Participate in the computerisation of herbarium specimens
- ⇨ Provide information on the vegetation of the country, plant identifications and an advisory service to students, researchers and members of the public
- ⇨ Carry out any other duties assigned to him/her by the head of the institution

## ANNEX 6. *Financial and Reporting Arrangements*

### A. General

1. The National Botanical Institute, hereinafter referred to as the NBI, is responsible to the Administrator of UNDP for the custody and proper use of funds advanced to it by UNDP.

2. The NBI will maintain separate accounts for UNDP resources. It will use the funds provided to it only for inputs financed by UNDP, in accordance with the project budget covering UNDP's contribution.

3. Advances and funds to and payments by UNDP on behalf of Governments are governed by the applicable UNDP Financial Regulations and Rules and directives regarding the utilisation of currencies.

4. The NBI will provide UNDP with financial statements of UNDP funds received and spent, prepared in accordance with the UNDP financial year (1 January to 31 December) in English. Annual financial statements will be audited by the legally recognised auditors of the NBI's own accounts. To the extent feasible, the audit principles and procedures prescribed for the United Nations will be applied by the auditors, who will provide audit reports annually together with the reports set out below.

5. For the purpose of reporting to UNDP, US dollar equivalents will be calculated at the United Nations operational rates of exchange. The Resident Representative of UNDP will inform the NBI of such United Nations rates of exchange and of changes thereto when they occur.

### B. Advance of Funds

6. Advances will be made by the Resident Representative at the request of the NBI in accordance with the Project Document and in the required currencies subject to the conditions set out below.

7. The NBI will indicate its cash requirements from UNDP funds for each period of the schedule of advances included in the Project Document at least two weeks before payment is due. Advances will be made by UNDP at the time indicated in the schedule of advances, in the amounts and currencies requested by the NBI.

8. If the schedule of advances included in the Project Document no longer reflects actual requirements for funds, a new schedule will be prepared by the NBI in consultation with the Resident Representative. Advances should normally be sufficient to cover anticipated cash requirements for a maximum of three months.

9. Local currency advances to the NBI will normally be made by the Resident Representative.

10. Advances to the NBI in US dollars will be made by the Resident Representative if this currency is available to him or her. The Resident Representative will arrange for advances in currencies not available to him or her to be made by UNDP headquarters or other field offices, as deemed appropriate.

### C. Direct Payments by UNDP

11. At the request of the NBI, UNDP will, after verification of the supporting documentation, make payments directly to individuals or firms providing UNDP-financed services or goods. The requests will

be addressed to the Resident Representative who will either arrange for the payments to be made by his or her office or by UNDP headquarters. The requests will indicate payee, amounts and currencies required, justification for the request and payment instructions reflecting payee's bank, its address and the account number.

12. The Resident Representative will provide the NBI with statements of direct payments made by UNDP within 15 days following 30 April, 31 August and 31 December, for incorporation in the project delivery report in accordance with paragraph 13 (b), below.

**D. Periodic Financial Statements**

13. The NBI will furnish the Resident Representative with certified financial statements within 30 days following 30 April and 31 August and within 60 days following 31 December. The statements will include the following:

(a) ***Status of funds advanced by UNDP.*** The statement will be submitted for each period indicated above and will be prepared in the currency of the advance. Separate statements will be issued where different currencies have been advanced. Each statement will reflect cumulatively for the year the amount of funds available at the beginning of the year, funds advanced by UNDP, funds expended by the NBI during the reporting period and the resulting balance at the end of the period. The statement will also detail expenditure incurred by month in local currency and the US dollar equivalent calculated at the applicable United Nations operational rate of exchange;

(b) ***Project delivery report.*** The report will be submitted for each period indicated above and will reflect cumulative current-year expenditure classified according to the items listed in the approved project budget. It will incorporate the expenditure incurred by the NBI and, where appropriate, the expenditure statement of the co-operating agency, if any, and the statement of direct payments made by UNDP;

(c) ***Annual report of UNDP-financed non-expendable equipment.*** The NBI will furnish the Resident Representative, for the year to 31 December, within 60 days following that date and together with other financial statements due at that date, with an annual report of non-expendable equipment. The report will include all UNDP-financed non-expendable equipment furnished to the project during the year. Non-expendable equipment purchased by the co-operating agency, if any, and furnished to the project will also be included. The report will describe each item in detail, the serial or registration number assigned by the maker and reflect the cost at the US dollar equivalent at the time of purchase calculated at the United Nations operational rate of exchange;

(d) ***Expenditure statement for jointly financed projects***. In the case of joint financing of project activities by the NBI and UNDP and, as the case may be, other sources of assistance, the certified financial statements referred to above shall be accompanied by a separate statement reflecting expenditure for the full project covering the same period as the certified financial statements. To this expenditure statement should be added an indication of the apportionment by the NBI of the reported expenditure to UNDP's contribution and other available funds.

14. If the NBI cannot submit the financial statements on the date on which they are due, it will inform the Resident Representative of the reasons and indicate the planned submission date.

E. **NBI's Annual Audited Financial Statements**

15. A certified and audited annual financial statement of the status of funds advanced by UNDP, as described in paragraph 13 (a), above, will be made available by the NBI to the Resident Representative within 120 days after the end of the calendar year.

16. The financial statement will be audited and attested to by the entity specified in paragraph 4, above.

F. **NBI Final Financial Statements**

17. Upon final completion of UNDP assistance to a project, the NBI will provide final financial statements to cover the period 1 January to the date of either financial completion or refund of the unspent balance of UNDP funds, if any (see paragraph 18, below). The financial statements will be audited so as to conform to the requirements set out in section E above.The statements will be provided within 120 days from the date of financial completion to the Director, DOF, with copies to the UNDP Resident Representative.

18. If there is an unspent cash balance of UNDP funds held by the NBI, that balance will be refunded by the NBI in the currency of the advance not later than 30 days after the date of financial completion.

G. **Audit by UNDP**

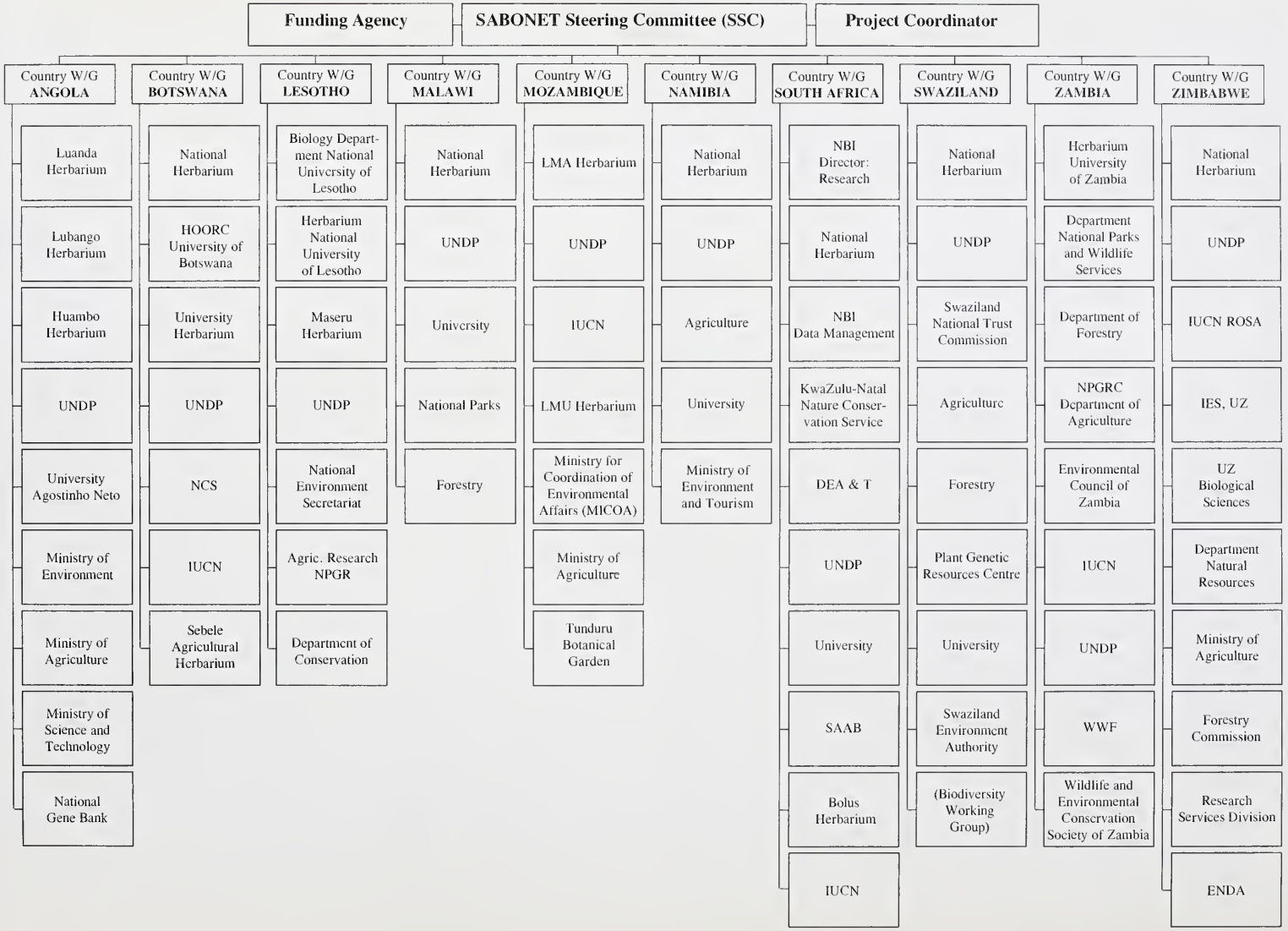
19. All accounts maintained by the NBI for UNDP resources may be audited by the UNDP internal auditors and/or the United Nations Board of Auditors or by public accountants designated by the United Nations Board of Auditors.

## ANNEX 7. *Terms of Reference for the Steering Committee*

The **terms of reference** for the Steering Committee are as follows:

- ❑ Review and endorse the overall project plan and strategy;
- ❑ Approve the annual work plan;
- ❑ Review and monitor the implementation of the overall project plan and strategy;
- ❑ Ensure that the standards and relevance of the training and graduate courses are acceptable;
- ❑ Evaluate the progress of each trainee and recommend action where necessary;
- ❑ Prepare recommendations on financial arrangements to funding agencies;
- ❑ Ensure implementation of SSC recommendations;
- ❑ Review and endorse the technical and financial reporting requirements of ("external support") funding agencies;
- ❑ Facilitate linkages and collaboration with similar activities in the region;
- ❑ Ensure an adequate balance of resource allocation and use in the region; and
- ❑ Review its own terms of reference from time to time.

## ANNEX 8. *Organigram of the Project Coordination Mechanism*



## ANNEX 9. *Regional Biodiversity References*


DAVIS, S.D., HEYWOOD, V.H. & HAMILTON, A.C. (eds) 1994. ***Centres of Plant Diversity: A Guide and Strategy for their Conservation***. Oxford University Press, Oxford. 354 pp.

HILTON-TAYLOR, C. 1996. Red Data List of southern African plants. ***Strelitzia*** 4, 117 pp. National Botanical Institute, Pretoria.

HUNTLEY, B.J. 1975. Ecosystem conservation in southern Africa. In: Werger, M.J.A. (ed.). ***Biogeography and Ecology of Southern Africa***. Junk, The Hague, pp. 1333-1384.

HUNTLEY, B.J. (ed.) 1989. ***Biotic Diversity in Southern Africa: Concepts and Conservation***. Oxford University Press, Cape Town. 380 pp.

HUNTLEY, B.J. (ed.) 1994. Botanical diversity in Southern Africa. ***Strelitzia*** 1, 412 pp. National Botanical Institute, Pretoria.

HUNTLEY, B.J. 1996. Biodiversity Conservation in the New South Africa. In: ***Biodiversity, Science and Development: Towards a New Partnership*** (eds F. Di Castri and T. Younes) CAB International, Oxford, pp. 282-303.

SEYANI, J.H. & CHIKUNI, A.C. 1994. Plants for the People. ***Proceedings of the XIIth Plenary Meeting of AETFAT, Zomba, Malawi,*** 2-11 April 1991. 1511 pp.

WILLIS, C.K. (ed.) 1997. Southern African National Herbaria: Status Reports, 1996. ***Southern African Botanical Diversity Network Report 1.*** SABONET, Pretoria, South Africa. 59 pp.

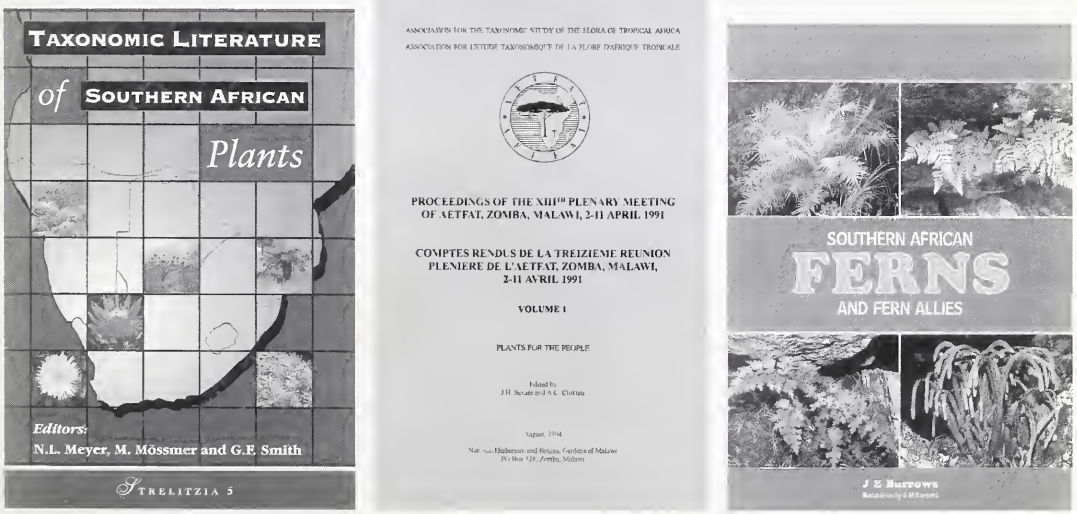




Figure 59. **Examples of key southern African botanical literature.**




Figure 59. (contd). **Examples of key southern African botanical literature.**

## ANNEX 10. *UNDP-funded Projects in the Region*

### ANGOLA

**1.** Integrated Management of the Benguela Current Large Marine Ecosystem. UNDP/UNEP/World Bank. GEF PDF Block B proposal recommended by GEFSEC (former GEFOP) for approval. Block B duration: January - October 1997. South Africa, Namibia, Angola, to be headquartered in Namibia. Proposed GEF contribution to PDF US$344,000. The programme is termed the Benguela Environment, Fisheries, Interaction and Training Programme (BENEFIT).

**2.** Angola, together with Botswana and Namibia, have received Block B funding from GEF to prepare a programme to establish joint management of the Okavango River. This programme will have a significant biodiversity assessment component.

### BOTSWANA

**1.** The GEF/Small Grants Programme is currently supporting an Okavango Research Centre Project to preserve a unique plant collection of the Okavango Delta.

**2.** Recently, Botswana expressed interest in preparing a Biological Diversity Conservation Strategy and Action Plan with GEF assistance. Formulation of the project has not yet started.

**3.** Botswana, together with Angola and Namibia, have received Block B funding from GEF to prepare a programme to establish joint management of the Okavango River. This programme will have a significant biodiversity assessment component.

### LESOTHO

**1.** UNDP has a project on the preparation of a Biodiversity Strategy for Lesotho, being implemented by the National Environment Secretariat (NES) and is funded by the Global Environment Facility (GEF).

### MALAWI

**1.** Lake Malawi/Nyasa Biodiversity Project. The Lake Malawi/Nyasa Biodiversity Conservation Project, jointly developed by the Government of Malawi and the World Bank has been approved by the Global Environment Facility and is now operational. The project sets out to assist riparian states in creating the scientific, educational, and policy basis necessary for conserving the biological diversity of the lake and its unique ecosystem. This is a US$ 8.5 million project with US$ 5 million from GEF and US$ 3.5 million from the Canadian International Development Agency (CIDA).

**2.** Biodiversity Country Study, supported by UNEP. Malawi has developed and submitted to UNEP, a Biodiversity Country Study which aims at documenting the biodiversity of the country covering all plants, animals, micro-organisms, genetic materials and ecosystems; create a database and establish a public awareness programme for the biological resources of Malawi; assess and identify biological resources requiring immediate statutory protection; identify problems that impinge on the efforts to conserve the biological diversity of Malawi; identify gaps which need addressing; assess the capacity of institutions and personnel in meeting the demands imposed by the requirement to conserve the country's biological diversity and finally determine the economic benefits arising from conservation and sustainable utilisation of biodiversity in Malawi. It is envisaged that Malawi will develop a National Biodiversity Action Plan

which will attempt to put together a comprehensive, harmonised and a multi-sectoral strategy, using a participatory approach, to address the concerns that threaten biological diversity in Malawi.

**3.** Mount Mulanje Conservation Trust. The long term conservation of the Mulanje massif will depend above all on the will of the local communities to secure it. To do so they must identify their most urgent priorities in terms of their natural resource use, and empowered to manage the resources accordingly. In view of this requirement a non-governmental organisation, Mulanje Mountain Conservation Trust (MMCT) has been proposed under a five year Mulanje Mountain Conservation Project. The project's main objective is the long term conservation of the flora, fauna and ecosystems of Mulanje Mountain which is both of global importance and vital to the livelihoods of the people living in the surrounding communities. The project will also support research on biodiversity conservation that will be of global importance. A formal request for a project development fund to the GEF has been made.

**MOZAMBIQUE**

**1.** Western Indian Ocean Marine Protected Areas Programme. UNDP/IUCN. GEF PDF Block B grant proposal for a duration of 11 months. 8 WIO countries. Project headquarter to be in Nairobi (IUCN EARO). Proposed UNDP/GEF contribution: US$ 334,100.

**NAMIBIA**

**1.** Integrated Management of the Benguela Current Large Marine Ecosystem. UNDP/UNEP/World Bank. GEF PDF Block B proposal recommended by GEFSEC (former GEFOP) for approval. Block B duration: January - October 1997. South Africa, Namibia, Angola, to be headquartered in Namibia. Proposed GEF contribution to PDF US$ 344,000. The programme is termed the Benguela Environment, Fisheries, Interaction and Training Programme (BENEFIT).

**2.** There is a Biodiversity Country Study for Namibia within the Ministry of Environment and Tourism funded by UNEP. The programme started in 1995.

**3.** Namibia, together with Botswana and Angola, have received Block B funding from GEF to prepare a programme to establish joint management of the Okavango River. This programme will have a significant biodiversity assessment component.

**SOUTH AFRICA**

**1.** Southern Africa Biodiversity Programme: A Regional Support Network for National Implementation of the Convention on Biological Diversity. UNDP/IUCN/SADC. Draft full GEF project proposal. Estimated starting date 1 January 1997, 5 years duration. 10 countries, to be headquartered in Zimbabwe (IUCN ROSA). Proposed UNDP/GEF contribution US$ 4.15 million.

**2.** Integrated Management of the Benguela Current Large Marine Ecosystem. UNDP/UNEP/World Bank. GEF PDF Block B proposal recommended by GEFSEC (former GEFOP) for approval. Block B duration: January - October 1997. South Africa, Namibia, Angola, to be headquartered in Namibia. Proposed GEF contribution to PDF US$ 344,000. The programme is termed the Benguela Environment, Fisheries, Interaction and Training Programme (BENEFIT).

**3.** Western Indian Ocean Marine Protected Areas Programme. UNDP/IUCN. GEF PDF Block B grant proposal for a duration of 11 months. 8 WIO countries. Project headquarter to be in Nairobi (IUCN EARO). Proposed UNDP/GEF contribution: US$ 334,100.

**4.** At a GEF workshop held in Pretoria, October 1996, a number of project ideas in the biodiversity area were mentioned. These have, however, not been formalised.

**SWAZILAND**

**1.** There is a recently approved Biodiversity project SWA/97/G31 - National Biodiversity Strategy and Action Plan (BSAP), and Country Report to the Conference of Parties (COP) funded by GEF.

**ZAMBIA**

**1.** Pollution control and other measures to protect biodiversity in Lake Tanganyika - a regional project involving Tanzania, Burundi, Zaire and Zambia.

**2.** Zambia Forest Action Plan.

**ZIMBABWE**

**1.** National Biodiversity Strategy and Action Plan (BSAP) and Country Report to the Conference of the Parties (COP), project number ZIM/96/G31/A/1G/99. This project is being implemented by the Ministry of Environment and Tourism.

## ANNEX 11. *'In kind' National Government Inputs to the Project*

Each participating country will make 'in kind' contributions to the project. These contributions include the national and university herbarium collections, the living collections in botanical gardens, and the participation of counterpart staff, provision of office accommodation and administrative support.

It is difficult to attach a direct monetary value to such 'in kind' contributions. The value of capital infrastructure available to the national institutions in the region exceeds US$ 100 million.

The annual, recurrent government allocations to the botanical institutes exceeds US$ 7,905 million (see Table below) or *ca* US$ 40 million for the five year period of the SABONET project.

The estimate of *ca* US$ 40 million is based on submissions from the participating countries. If only 10% of the total national government commitment for staff and operating costs is devoted solely to SABONET, a contribution of US$ 4 million can be given as a very conservative estimate of 'in kind' input. In reality, the national government contributions to SABONET will far exceed this figure.

| COUNTRY | Annual staff and operating budget of participating institution<br>US$ | Five year total<br>US$ |
|---|---|---|
| Angola | 5 000 | 25 000 |
| Botswana | 35 000 | 175 000 |
| Lesotho | 25 000 | 125 000 |
| Malawi | 250 000 | 1 250 000 |
| Mozambique | 45 000 | 225 000 |
| Namibia | 126 000 | 630 000 |
| South Africa | 7 084 000 | 35 420 000 |
| Swaziland | 30 000 | 150 000 |
| Zambia | 50 000 | 250 000 |
| Zimbabwe | 255 000 | 1 275 000 |
| **TOTAL** | **7 905 000** | **39 525 000** |

**TITLES IN THIS SERIES**

1. ***Southern African National Herbaria: Status Reports, 1996.** C.K. Willis. (editor). March 1997. 59 pp. ISBN 1-874907-36-6.

2. **Index herbariorum: southern African supplement.** G.F. Smith and C.K. Willis. (editors). September 1997. 55 pp. ISBN 1-874907-37-4.

3. **PRECIS Specimen Database user guide.** C.A. Prentice and T.H. Arnold. May 1998. 130 pp. ISBN 1-874907-39-0.

4. **Inventory, evaluation and monitoring of botanical diversity in southern Africa: a regional capacity and institution building network (SABONET).** B.J. Huntley, E.M. Matos, T.T. Aye, U. Nermark, C.R. Nagendran, J.H. Seyani, M.A.C. da Silva, S. Izidine, G.L. Maggs, C. Mannheimer, R. Kubirske, G.F. Smith, M. Koekemoer, G.M. Dlamini, P.S.M. Phiri, N. Nobanda and C.K. Willis. November 1998. 73 pp. ISBN 1-919795-36-7.

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